QuicKART 2000 Series

Service Manual

QuicKART
Electric Utility Machine

Manufactured by:

Dane Technologies, Inc.
7105 Northland Terrace
Minneapolis, MN 55428

Phone: 763-544-7779
Toll Free: 1-888-544-7779
Fax: 763-544-4234
www.danetechnologies.com

Part No. 970-011

Rev. Date: 3/1/06

Table of Contents

Topic	Section
• QuicKART 2000 series Operating Instructions And Diagrams	1
• QuicKART 2000 series Troubleshooting	2
• QuicKART 2000 series Service Bulletins	3
• QuicKART 2000 series Exploded View Diagrams	4
• QuicKART 2000 series Parts Order Information	5

Note on radio equipment used:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

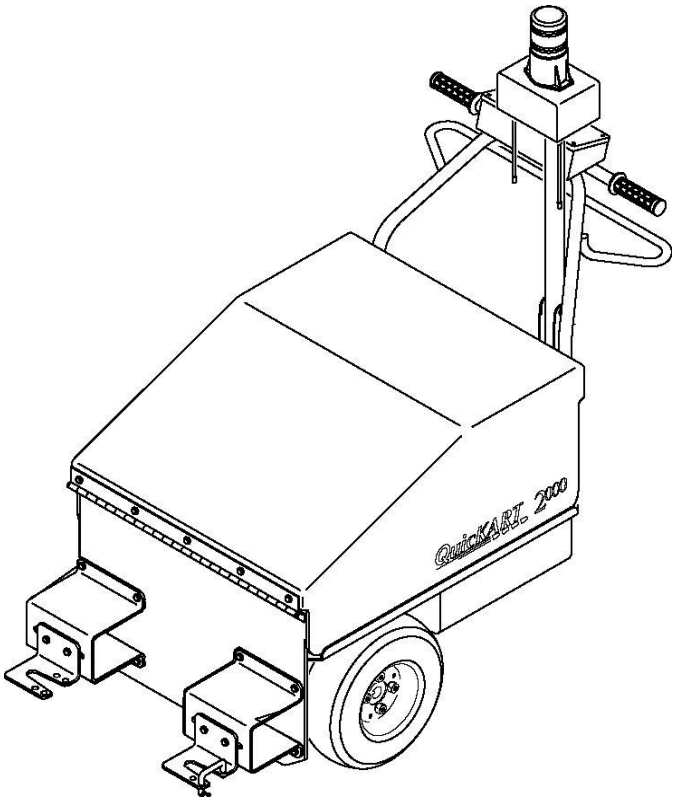
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

– Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and receiver.
– Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
– Consult the dealer or an experienced radio/TV technician for help.

The abbreviation IC, before the Canadian Registration Number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

The CE mark, if present, declares that this equipment meets relevant EU Directives and Standards.

QuicKART 2000 SERIES



Operating Instructions

QuicKART
Electric Utility Machine

Manufactured by:

Dane Technologies, Inc.
7105 Northland Terrace
Minneapolis, MN 55428

Phone: 763-544-7779
Toll Free: 1-888-544-7779
Fax: 763-544-4234
www.danetechnologies.com

Part No. 970-011

Rev. Date: 3/1/06

QuicKART 2000 SERIES
Owner's Manual
Operating Instructions

Table of Contents

QuicKART 2000 WARNINGS & SAFETY NOTES 5
QuicKART 2000 SERIES LABELS 7
QuicKART 2000 LABEL LOCATIONS 9
QuicKART 2500 LABEL LOCATIONS 9
QuicKART 2000 CART STRAP ACCESSORY 10
UNPACKING THE QuicKART 2000 13
QuicKART 2000 IMPORTANT MAINTENANCE NOTES 14
OVERVIEW OF OPERATION 15
QuicKART 2000 – TOP VIEW 16
QuicKART 2000 – REAR VIEW 16
QuicKART 2000 – SIDE VIEW 17
SYSTEM WIRING DIAGRAM 18
SYSTEM JUNCTION BOX 19
SYSTEM JUNCTION BOX DIAGNOSTIC LIGHTS 20
CART COUPLER & ROLLER GUIDE ASSEMBLY 21
ATTACHING THE COLLECTION CART 22
QuicKART HITCHES AND YOKES 24
ORIENTATION TO THE QuicKART 2000 31
REMOTE CONTROL 33
CONTROL PANEL 33
OPERATION OF THE QuicKART 2000 34
BATTERY CHARGING 36
REMOTE CONTROL: BATTERY CHANGING 37
REMOTE CONTROL: BATTERY CHANGING DIAGRAM 38
PROGRAMMING THE REMOTE CONTROL 38
QuicKART 2000-2500 MAINTENANCE NOTES 39
CHANGING FRONT TIRES 41
CHANGING REAR TIRE 42
TECHNICAL SPECIFICATIONS 43
QuicKART WARRANTY 44

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

970-011 Rev. 3/1/06

QuicKART 2000 WARNINGS & SAFETY NOTES

Please read all the information included in this manual and the service instructions prior to operating or servicing the QuicKART. In addition, make certain all operators have been given and passed the certified operators course before using the QuicKART.

IMPORTANT SAFETY NOTE:

THE RED BATTERY PLUG MUST BE DISCONNECTED FROM THE JUNCTION BOX ANY TIME MAINTENANCE IS BEING PERFORMED UNDER THE COVER! (See diagram on page 18)

1) The QuicKART is designed to push shopping carts. Any other use of the QuicKART is prohibited unless specifically endorsed by the manufacturer. Improper usage and operation of the QuicKART may void the warranty.

2) You must be at least 16 years old with a valid driver's license or vision test to operate the QuicKART. In certain states, regulations may require operators to be older. Please check your states regulations regarding operation of motorized equipment before using the QuicKART.

3) Never carry passengers on the QuicKART 2000!

4) The QuicKART is equipped with a brake, which automatically engages when the machine is turned off or not in motion. To avoid an accident, **do not leave the machine parked or unattended on slopes.** When the QuicKART is to be left unattended or in storage, turn it "OFF" and remove the key.

5) Do not leave the QuicKART unattended while it is turned "ON".

6) Operate the QuicKART at a safe speed; go only as fast as safety considerations allow. Take into consideration the location of store entrances, sidewalks, pedestrian and vehicle traffic, driveways, and parking lot layout.

7) Always operate in slow speed when near store guests. Operating conditions, such as wet or slippery pavement or slopes can affect the stopping distance of the QuicKART. Do not push more carts than the individual operator can safely control when those conditions are present. **Do not exceed 30 carts at a time under any circumstance. Refer to your store policy for the maximum cart number.**

8) Verify all warning and emergency labels are legible and mounted in correct areas shown on drawings shown on pages 7 and 8.

9) Do not drive over curbs or the edges of hardened surfaces higher than one inch.

10) Always look behind the QuicKART before and while operating in reverse.

11) Batteries must be fully charged initially before using the QuicKART.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

12) **The electrolyte in a storage battery is an acid, which can cause severe burns to the skin and eyes. Wear appropriate protective clothing when working with batteries. Treat all electrolyte spills with an extended flushing with clear water. Contact a physician immediately if contact is made with battery acid.**

13) Standard batteries do require regular maintenance. It may be necessary to add distilled water to the batteries.

14) Hydrogen gas is formed when charging the batteries. Use a location with adequate ventilation when charging QuicKART batteries. Never smoke near batteries. Do not charge batteries in an area with open flame or where there is electrical equipment that could cause an electrical arc.

15) Do not lay metal objects (wrenches, screwdrivers, etc.) on any of the batteries to prevent electrical short circuits.

16) Batteries are heavy. Always use care and proper lifting technique to avoid injury when removing or replacing batteries.

17) Make sure QuicKART is properly secured when changing tires. (See instructions on page 41 and 42.)

18) Two options are available to tether the carts together, a strap or a cart restraint assembly, these are available as accessories. To view the procedure to strap the carts see the illustration on pages 10 and 11. The cart restraint assembly also has a strap and adds a spring to allow some motion of the carts in turns but still controls them.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QuicKART 2000 SERIES LABELS

The QuicKART 2500 uses label 500-105 instead of 500-021

Dane Industries, Inc.
Receiver Model 100-055

FC Tested to Comply With FC Standards

For Home or Office Use

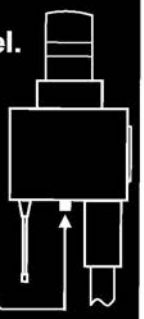
This device complies with FCC Rules part 15. Operation is subject to the following two conditions (1) This device may not cause harmful interference and (2) this device must accept any interference that may be received, including interference that may cause undesired operation.

Dane Industries, Minneapolis MN
Phone 888-544-7779

500-049

REMOTE PROGRAMMING INSTRUCTIONS

1. Turn QuicKart on, switch to "Radio" mode on Control Panel.
2. Simultaneously push: Brake and Horn buttons on Remote, and the Rubber button on underside of the Beacon Tower.
3. Horn will sound when programming is complete.



500-148

EMERGENCY
SHUT OFF
PUSH SWITCH TO STOP
PULL SWITCH, TURN KEY
OFF AND ON TO RESTART

500-128

The QuicKART 2500 uses label 500-108 instead of 500-053

REMOVE SCREWS TO REPLACE 4 AA BATTERIES

500-181

DANE INDUSTRIES

DANE INDUSTRIES, INC.
Manufactured under one or more of the following patents:
U.S. 5,934,694
U.S. 6,220,379
All other patents pending.

MINNEAPOLIS
MINNESOTA, USA

1-888-544-7779 within USA
763-544-7779 outside the USA

www.daneindustries.com

500-102

DANE INDUSTRIES

DANE INDUSTRIES, Inc.
Minneapolis, MN USA
www.daneindustries.com
Phone: (763) 544-7779

Model No.: QuicKART 2000
115 V.a.C. 60hz 4.7A
Serial No.:
Gross weight: 250Kg
IPX4
Suitable for use on surfaces with a gradiant not exceeding 18%.

CE

500-053

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

WARNING

WHO CAN OPERATE THE QUICKART:
- FEDERAL REGULATIONS REQUIRE THAT YOU BE AT LEAST 16 YEARS OLD AND PASS A VISION TEST TO OPERATE THE QUICKART. SOME STATES MAY REQUIRE OPERATORS TO BE OLDER.
- DO NOT OPERATE THE QUICKART UNLESS YOU MEET THE MINIMUM OPERATOR REQUIREMENTS SET DOWN BY FEDERAL REGULATIONS AND YOUR STATE.
- DO NOT OPERATE THE QUICKART UNLESS YOU HAVE VIEWED THE QUICKART TRAINING VIDEO AND PASSED THE QUICKART CERTIFIED OPERATOR'S TEST INCLUDED IN THE QUICKART OPERATOR'S MANUAL.

PRE-OP CHECKLIST:
- UNPLUG THE BATTERY CHARGING CORD.
- PERFORM A COMPLETE SAFETY CHECK TO ENSURE THAT ALL EQUIPMENT IS WORKING PROPERLY, INCLUDING: 1. EMERGENCY SHUT-OFF 2. THROTTLE 3. HORN 4. SAFETY LIGHTS 5. REMOTE CONTROL 6. AUTOMATIC BRAKE

DO NOT OPERATE THE QUICKART IF ANY PART IS NOT WORKING CORRECTLY. TELL YOUR MANAGER IMMEDIATELY AND CALL DANE TECHNOLOGIES AT 1-888-544-7779.

QUICKART OPERATING INSTRUCTIONS

BEFORE OPERATING THE QUICKART:
- MAKE SURE YOU MEET THE MINIMUM OPERATOR REQUIREMENTS LISTED ON WARNING LABEL.
- COMPLETE THE PRE-OP CHECKLIST ON THE WARNING LABEL.

WHILE OPERATING THE QUICKART:
- NEVER PUSH MORE THAN 30 SHOPPING CARTS, OR LESS IF CONDITIONS REQUIRE.
- PUSH ONLY AS MANY CARTS AS YOU CAN SAFELY CONTROL, BUT NEVER MORE THAN 30.
- USE A SAFETY STRAP TO KEEP THE CARTS UNDER CONTROL ON DOWNHILL SLOPES.
- NEVER SIT OR CARRY PASSENGERS ON THE QUICKART.
- ALWAYS OPERATE THE QUICKART SAFELY AND RESPONSIBLY. BE AWARE OF TRAFFIC AND PEOPLE AROUND YOU. USE THE SLOW SPEED WHEN NEAR STORE ENTRANCES OR GUESTS.

BEFORE LEAVING THE QUICKART:
- PARK THE QUICKART ON A LEVEL SURFACE AWAY FROM AREAS OF TRAFFIC.
- TURN KEY TO VERTICAL "OFF" POSITION AND REMOVE THE KEY.
- INFORM YOUR MANAGER IMMEDIATELY IF THE QUICKART IS NOT WORKING PROPERLY.

IMPROPER USE OF THE QUICKART MAY CAUSE DAMAGE TO PEOPLE OR PROPERTY AND WILL VOID THE MANUFACTURER'S WARRANTY. CALL DANE TECHNOLOGIES FOR SERVICE AT 1-888-544-7779.

P/N: 500-042, REV. C

WARNING

STOP! before performing any service or maintenance procedures, refer to the QuicKart owner's manual for full instructions and warranty information.

CAUTION!! THE BATTERY CABLE, MARKED WITH A YELLOW BAND, MUST BE DISCONNECTED ANY TIME MAINTENANCE IS BEING DONE UNDER THE COVER.

BEFORE PERFOMING ANY MAINTENANCE ON THE QUICKART:
- TURN OFF AND REMOVE THE KEY.
- MAKE SURE THE QUICKART IS ON A LEVEL SURFACE.
- SECURE COVER OPEN.
- SUPPORT MUST BE PROVIDED AND WHEEL BLOCKED BEFORE CHANGING TIRES. SEE INSTRUCTION MANUAL.

SAFTEY PRECAUTIONS:
- USE PROTECTIVE EYEWARE AT ALL TIMES DURING MAINTENANCE (CHEMICAL SPLASH GOGGLES, FACE SHIELD).
- DO NOT PERMIT OPEN FLAME, SPARKS, OR SMOKING IN THE AREA WHERE THE BATTERIES ARE BEING CHARGED OR DURING MAINTENANCE.
- ADEQUATE VENTILATION IS ESSENTIAL FOR SAFTEY.
- DO NOT LAY METAL OBJECTS ON THE BATTERIES.
- BATTERIES ARE HEAVY. LIFT CAREFULLY TO AVOID INJURY.

IMPROPER MAINTENANCE PROCEDURES MAY VOID THE MANUFACTURER'S WARRANTY. INFORM YOUR MANAGER AND DANE INDUSTRIES IMMEDIATELY IF THE QUICKART IS NOT WORKING PROPERLY.

DANE TECHNOLOGIES

Dane Technologies, Inc.
Minneapolis, MN
Call Toll Free: 1-888-544-7779
www.danetechnologies.com

500-041 REV A

ATTENTION

-The QuicKart has a smart regulator that will stop the QuicKart when it is overloaded.
-To resume operation, reduce the number of shopping carts being pushed by the QuicKart.

500-101

NOTE: 500-125

Remote and QuicKART must be re-programmed after changing batteries.

WARNING:

Warranty will be VOID if this cover is removed. There are no operator serviceable parts inside.

DANE TECHNOLOGIES, Minneapolis, MN 500-121 A

Part No.: _____ **Serial/ Date:** _____

- LOW BATTERY
- DRIVE COMMAND
- REMOTE FAST
- REMOTE SLOW
- REMOTE BRAKE
- SUPPLY FAULT

500-045

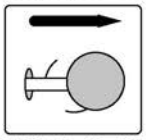
DANE INDUSTRIES

500-180

WARRANTY VOID IF SEAL BROKEN

AUTOMATIC BRAKE RELEASE

PULL TO RELEASE AUTOMATIC BRAKE!



500-039B

PUSH TO RUN

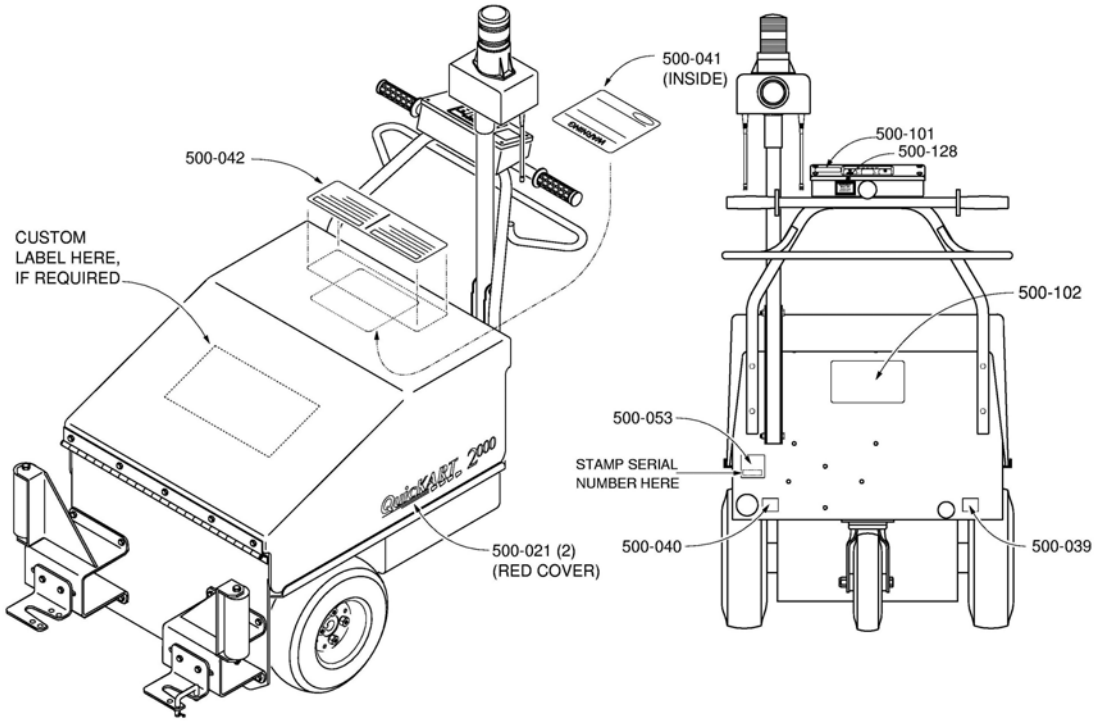
FCC ID N2N 600-023 MODEL No. 100-150

Canada IC: 4707A-600023

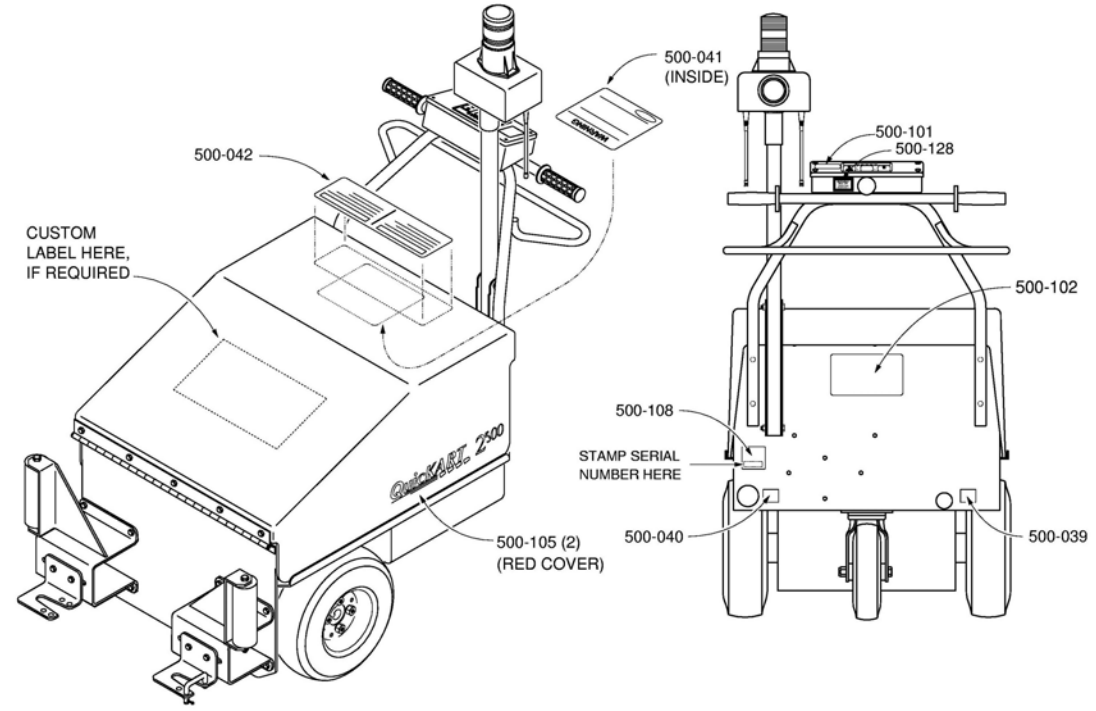
Dane Industries Inc. Minneapolis, MN USA 55442

500-135

QuicKART 2000 LABEL LOCATIONS

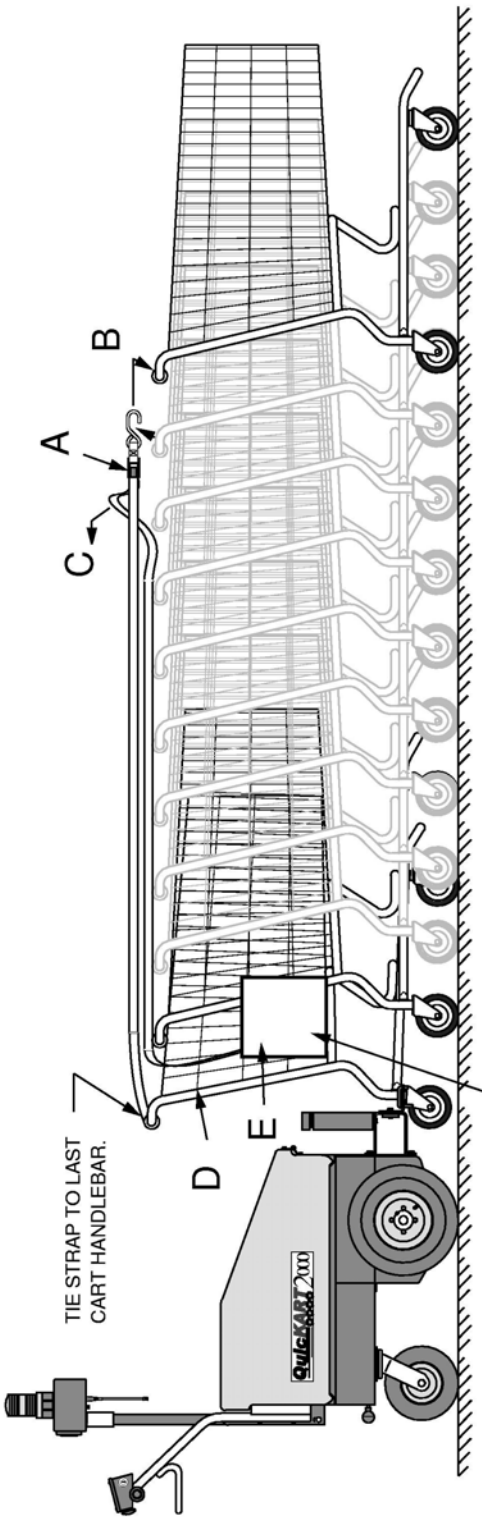


QuicKART 2500 LABEL LOCATIONS



7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com
970-011 Rev. 3/1/06

QuicKART 2000 CART STRAP ACCESSORY



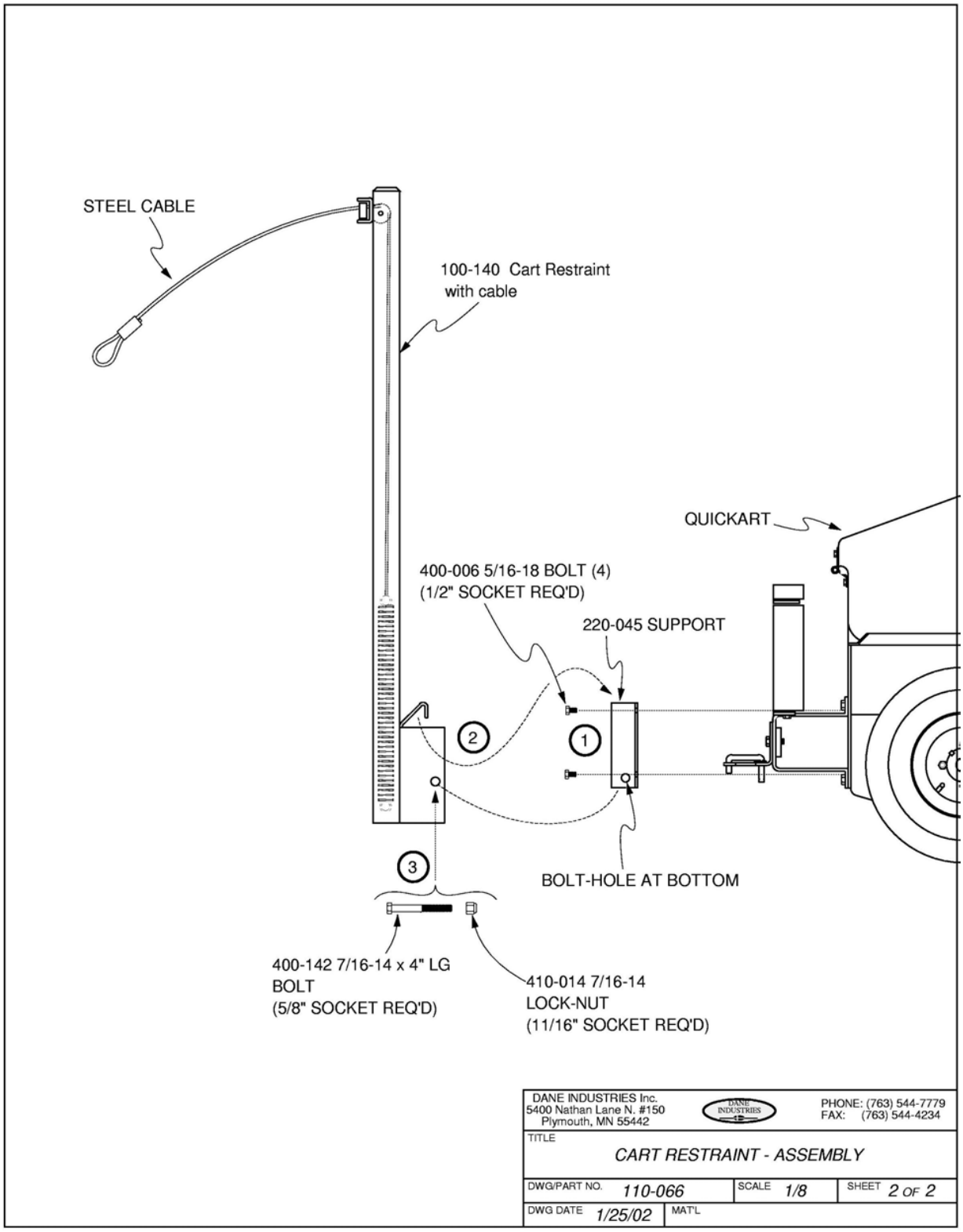
MOVING STRAP AFTER ADDING CARTS:

A. RELEASE STRAP LATCH WITH ONE HAND TO ALLOW STRAP TO SLIDE.
B. WITH OTHER HAND, REMOVE HOOK FROM HANDLEBAR AND MOVE TO ADDED CART(S).
C. LET GO OF LATCH. WHILE STILL HOLDING HOOK, PULL LOOSE END OF STRAP TO TIGHTEN.

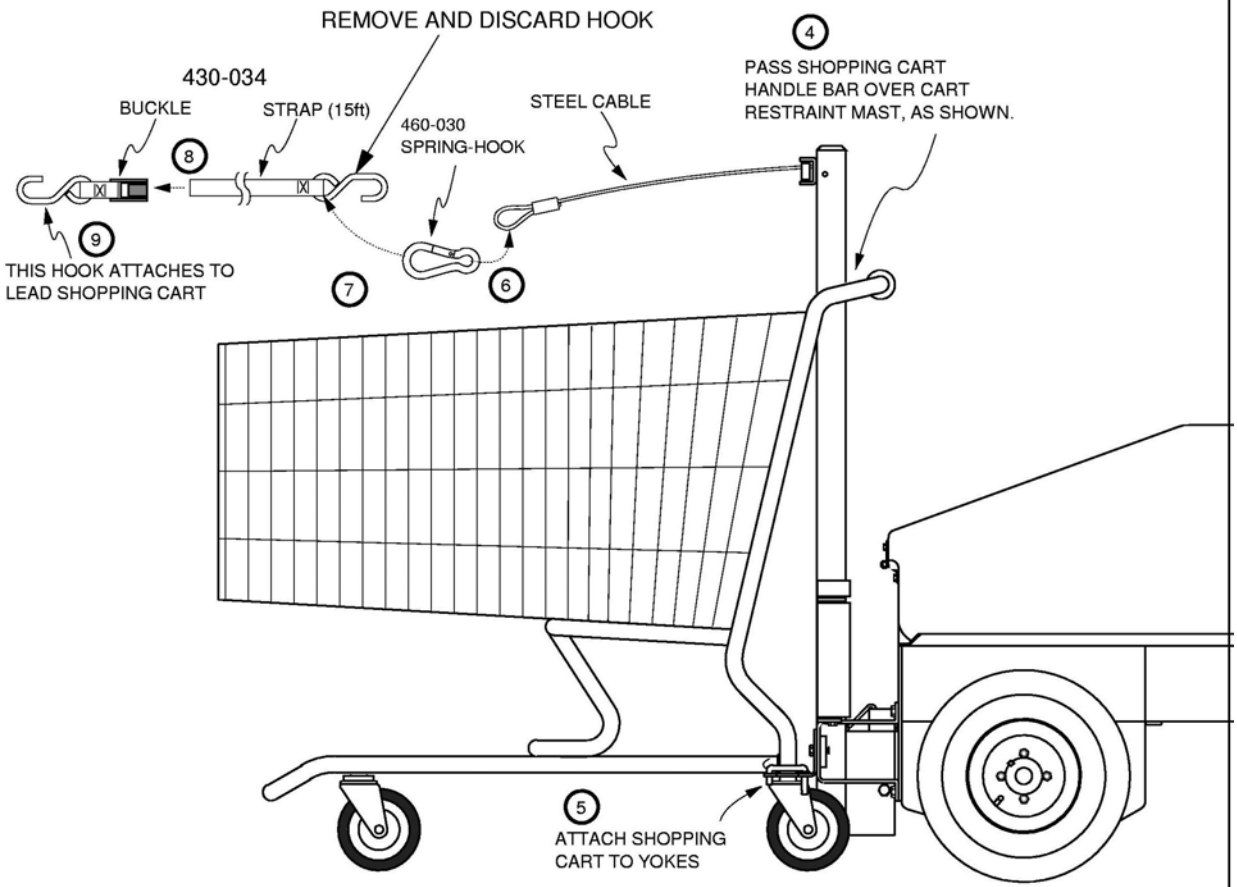
REMOVING CARTS:

A. RELEASE STRAP LATCH WITH ONE HAND TO ALLOW STRAP TO SLIDE.
B. WITH OTHER HAND, REMOVE HOOK FROM HANDLEBAR.
C. LET GO OF LATCH. WHILE STILL HOLDING HOOK, PULL LOOSE END OF STRAP REPEATEDLY TO SHORTEN STRAP WHILE WALKING TOWARD QuicKART.
D. HOOK LATCH AND HOOK ASSEMBLY TO SIDE OF LAST CART.
E. STARTING WITH THE STRAP END, BUNCH UP LOOSE STRAP AND PLACE IN CONTAINER.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com
970-011 Rev. 3/1/06



7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com



DANE INDUSTRIES Inc. 5400 Nathan Lane N. #150 Plymouth, MN 55442	DANE INDUSTRIES	PHONE: (763) 544-7779 FAX: (763) 544-4234
TITLE: *CART RESTRAINT - ASSEMBLY*		RELEASE ECO: *216*
DWG/PART NO.: *110-066*	SCALE: *1/8*	SHEET: *1 OF 2*
DWG DATE: *1/25/02*	MAT'L	

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

UNPACKING THE QuicKART 2000

1) The QuicKART 2000 is typically shipped on a wooden pallet. It comes with addition individual components that are packaged inside the QuicKART. Care must be taken not to damage them during the unpacking. The components are:

   a) **QuicKART**, the basic electric machine with two keys,

   b) **A box including:** a Remote Control Transmitter, to remotely control the QuicKART, and Cart Coupler Hardware (yokes for the cart coupler).

2) Remove all the plastic film that is wrapped around the system components. Take care not to bend beacon post components (especially the antennas) when removing the plastic. Cut banding material, which holds the QuicKART to the pallet.

3) Raise the hood to find a small box containing the remote control, beacon post bolt and nut, and cart coupler hardware. Remove this box and set it aside.

4) To remove the QuicKART from the pallet, use a sturdy wooden board(s) to create a ramp. Remove all straps holding the QuicKART to the shipping pallet. Insert the key and turn on the QuicKART. Turn the twist grip slowly and guide the QuicKART forward, down the ramp to the floor.

5) **Turn "OFF" the QuicKART**

6) Make sure the machine is **OFF,** the Beacon post hinges from a center position on a bolt and nut already installed. Swing it to an 11:00 o'clock position. Remove the bolt at the bottom of the beacon post bracket. Replace the bolt in the bottom holes and tighten lightly. Use care not to damage the wires. Take care not to damage the antenna, lights or the cable connectors at the ends of this beacon post.

7) To attach the cart coupler yokes, refer to the diagrams starting on page 21 of the Owner's Manual.

8) Each hand-held remote control transmitter operates on a unique pre-programmed code. For the QuicKART to operate in the Remote Mode, the receiver, which is in the beacon post, must be programmed to match the hand held transmitter. See page 38 for directions on how to program the remote control transmitter.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QuicKART 2000 IMPORTANT MAINTENANCE NOTES

Check the QuicKART daily, for safe operation.

Improper use or operation of the QuicKART, or the lack of proper maintenance, may result in decreased performance or damage to the QuicKART. The following parts of the QuicKART need regular and routine maintenance.

1. **Batteries** - Add distilled water as necessary. Water levels should be checked **monthly**.

2. **Tires** - Tires are solid (foam filled). Check **weekly** for wear.

3. **Rear Swivel Wheel Bearing** - Grease every **6 months** (grease gun compatible).

If at any time the QuicKART does not operate correctly, immediately turn it off and remove the key to prevent further operation. Immediately report any malfunctions to the store manager responsible for the QuicKART and Dane Technologies at 1-888-544-7779.

WARNING

Do not permit open flame, sparks or smoking during maintenance.
Adequate ventilation is essential for safety.
Do not lay metal objects on the batteries.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com
970-011 Rev. 3/1/06

OVERVIEW OF OPERATION

The QuicKART is an electrically powered shopping cart collection machine. It has several unique and patented features, which allow it to be used safely and simply in the shopping cart collection process.

The QuicKART provides the pushing power for a single employee to safely and easily move a maximum of 30 shopping carts from the parking lot into the store. Its ability to operate in remote control mode allows a single employee to steer the chain of carts from the front of the cart line while controlling the QuicKART as it pushes and follows from behind.

The QuicKART has proven its ability to work in all types of weather ranging from extreme heat or cold to rain and snow. The QuicKART has operated dependably in winter weather as cold as -20 degrees. It will also push carts through loose snow. On packed snow the QuicKART 2000 will push 10 to 20 carts. Winter operation can be enhanced with the use of optional snow tires.

The QuicKART operates on a 36-volt battery system. It will operate for up to ten hours on a single charge. Cold weather will reduce operating time. It will require eight to ten hours to fully recharge the batteries.

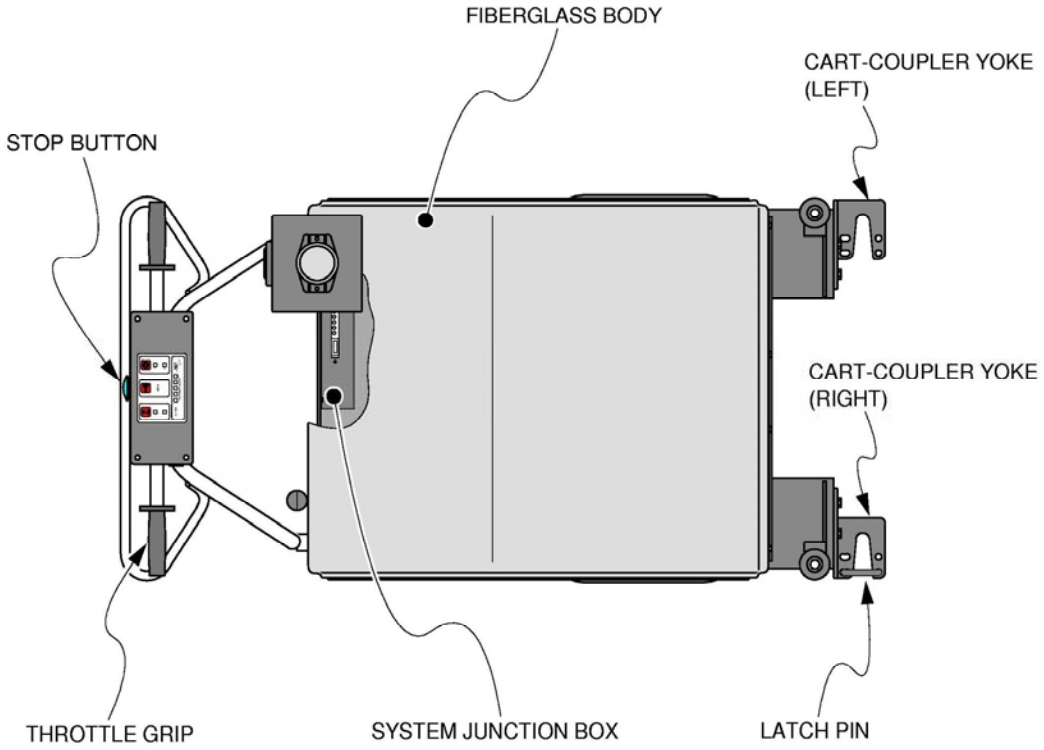
Each hand-held remote control transmitter operates on a unique pre-programmed code. For the QuicKART to operate in the Remote Mode, the receiver, which is in the beacon post, must be programmed to match the hand held transmitter, see page 38 for details. The remote is powered by internal batteries, which should be changed every two months for dependable operation. The small light on the remote will cease to operate when the battery needs replacing. After battery replacement, the remote must be reprogrammed; see page 38 for details.

The QuicKART is a productivity-enhancing tool, which will be most effective when it is well maintained and used responsibly. Training of employees is very important. Please read and review this manual. We strongly recommend that a training and operator certification program be developed and implemented to assure adequate training and safe operation.

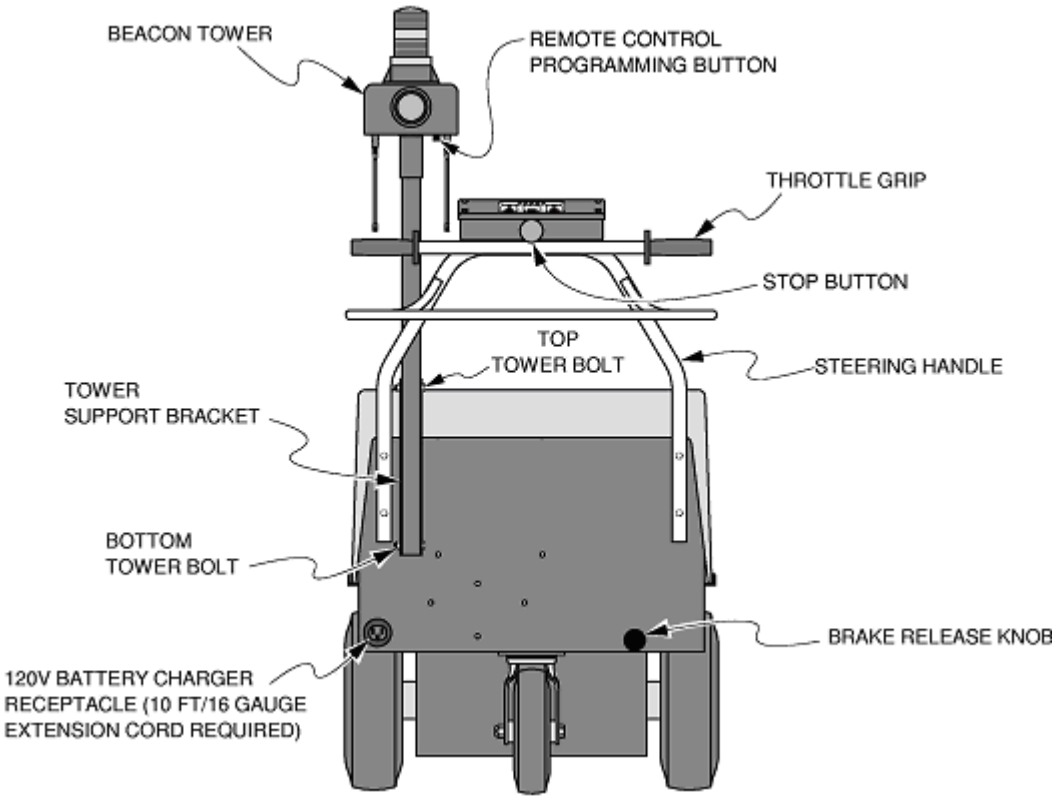
The use of the Dane Technologies' "Cart Depot" creates an integrated system for cart collection, which enhances productivity even further. Additional optional accessories are also available. These include an optional snowplow, snow tires and chains.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com
970-011 Rev. 3/1/06

QuicKART 2000 – TOP VIEW

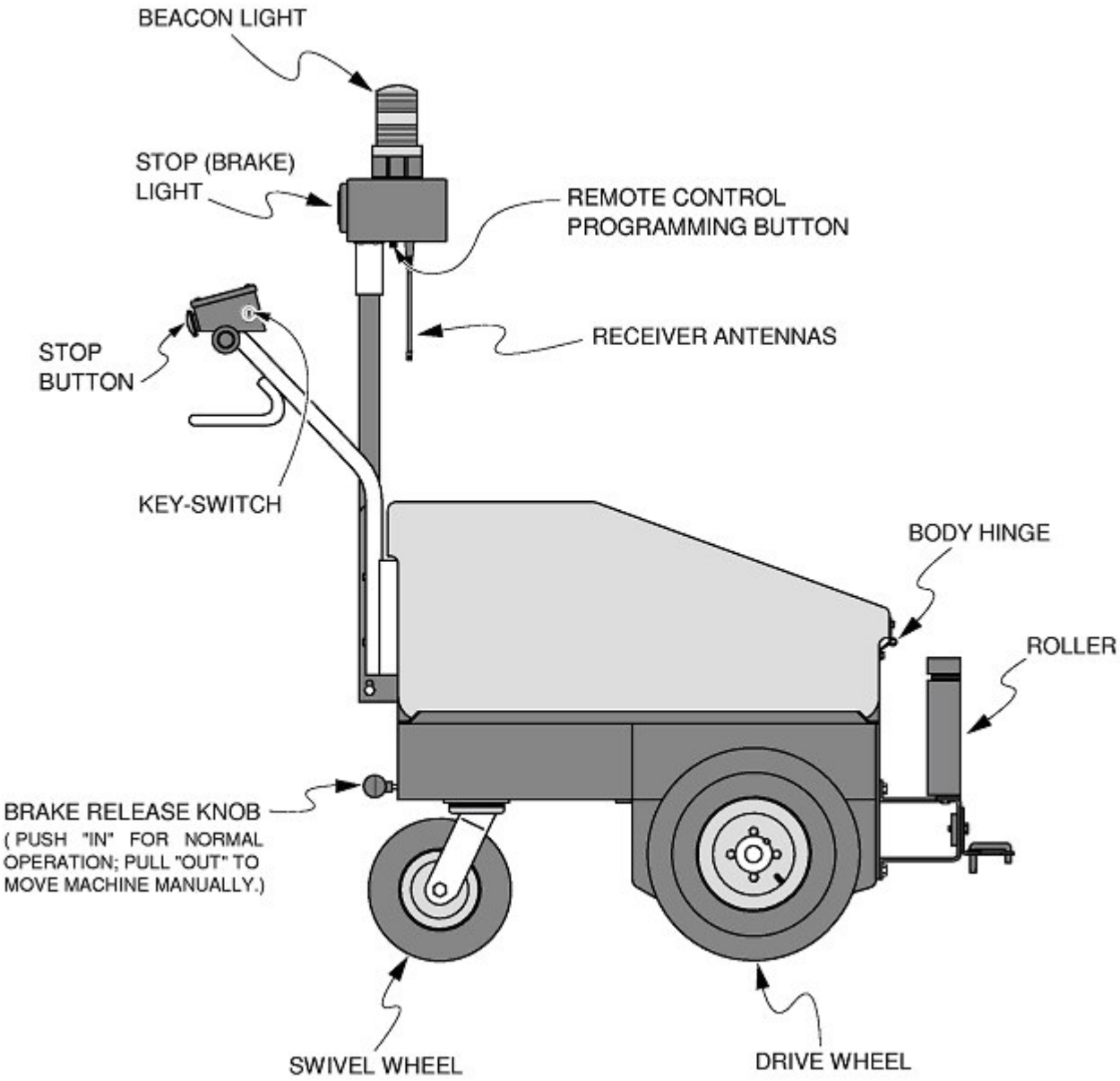


QuicKART 2000 – REAR VIEW



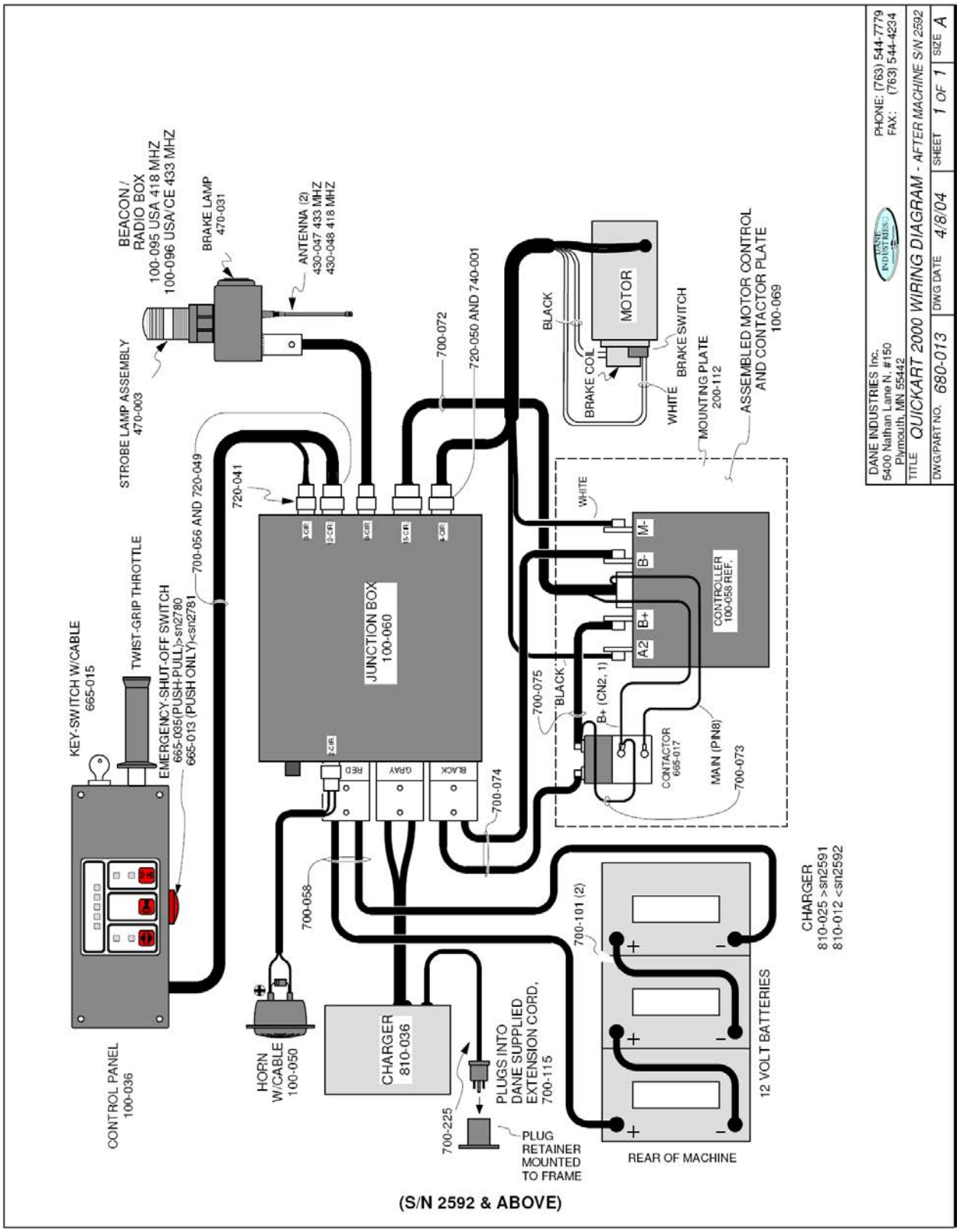
7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com
970-011 Rev. 3/1/06

QuicKART 2000 – SIDE VIEW



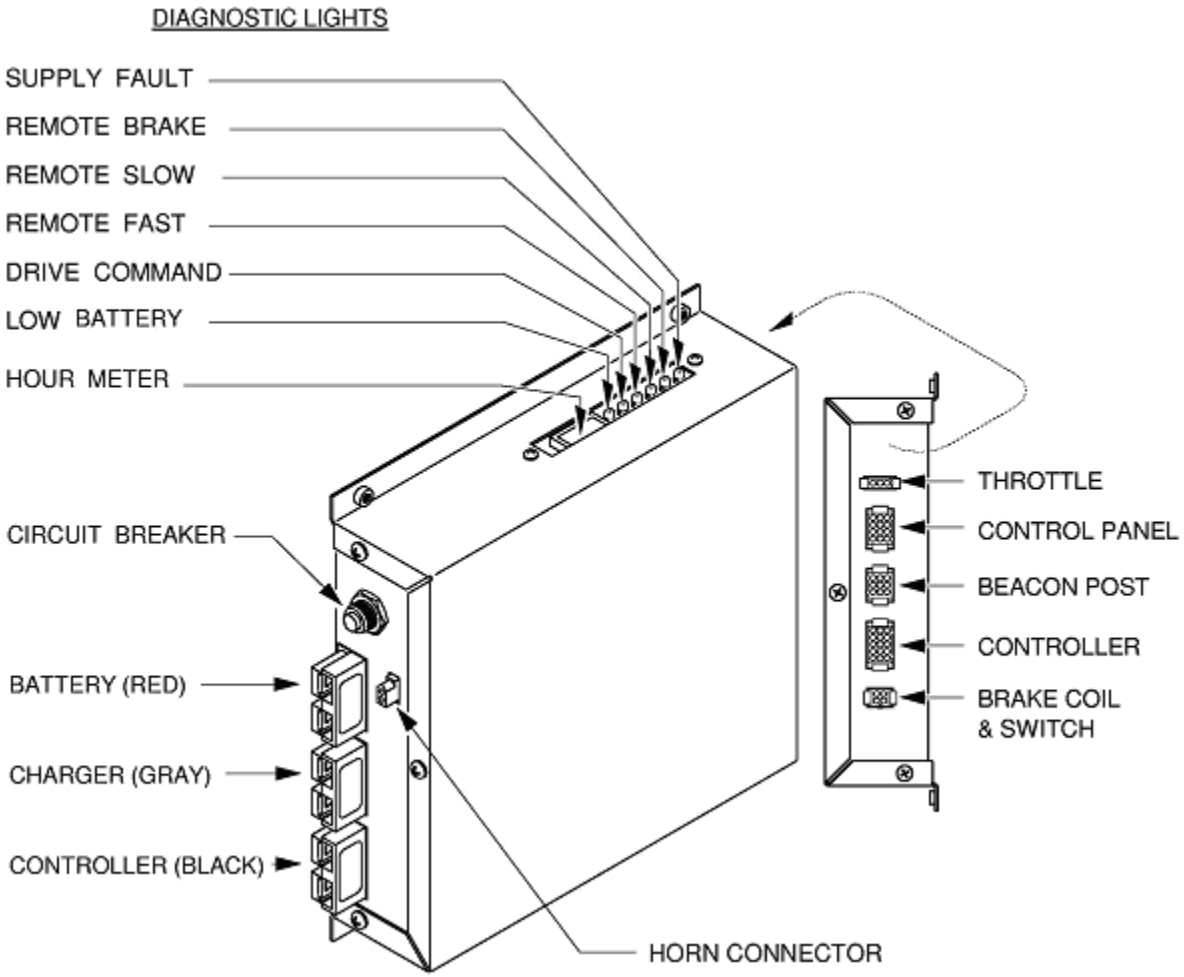
7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com
970-011 Rev. 3/1/06

SYSTEM WIRING DIAGRAM



7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

SYSTEM JUNCTION BOX



7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com
970-011 Rev. 3/1/06

SYSTEM JUNCTION BOX DIAGNOSTIC LIGHTS

Supply Fault: There are two conditions that cause this diagnostic light to come on:
1. When this light remains on (but not flashing) it indicates the machine was turned off by pushing on the Red emergency button on the control panel. The machine will not function while the light is on. To reset, pull out the button, turn the key switch off, then on again. This condition does not require service. (The key switch is the correct way to turn off the machine when it is stored or set aside for periods of time.)
2. When this light is flashing, it indicates that there is a problem in either the beacon post or the control panel. In a fault condition the "supply fault" light starts flashing as soon as the machine is turned on with the key switch. The machine will not function while the light is flashing. The control panel lights may remain lighted for 3-seconds then shut down but the fault light will remain flashing as long as the fault condition exists.
To determine if the problem is in the beacon post, turn off the machine with the key switch, unplug the cable leading to the beacon post then turn the key switch on again. If the problem is in the beacon post the machine will operate normally but only in the "manual" mode. If the problem is somewhere in the control panel circuitry, the fault light will continue to flash and the panel lights will go off in about 3 seconds.

Remote Brake: LED lights to indicate presence of "Brake" command from receiver. It has no effect in manual mode.

Remote Slow: LED lights to indicate presence of "Slow" drive command from receiver. Must light in conjunction with "Drive" Command LED in "Remote" mode in order to operate machine. It has no effect in manual mode.

Remote Fast: LED lights to indicate presence of "Fast" drive command from receiver. Must light in conjunction with "Drive" command LED in "Remote" mode in order to operate machine. It has no effect in manual mode.

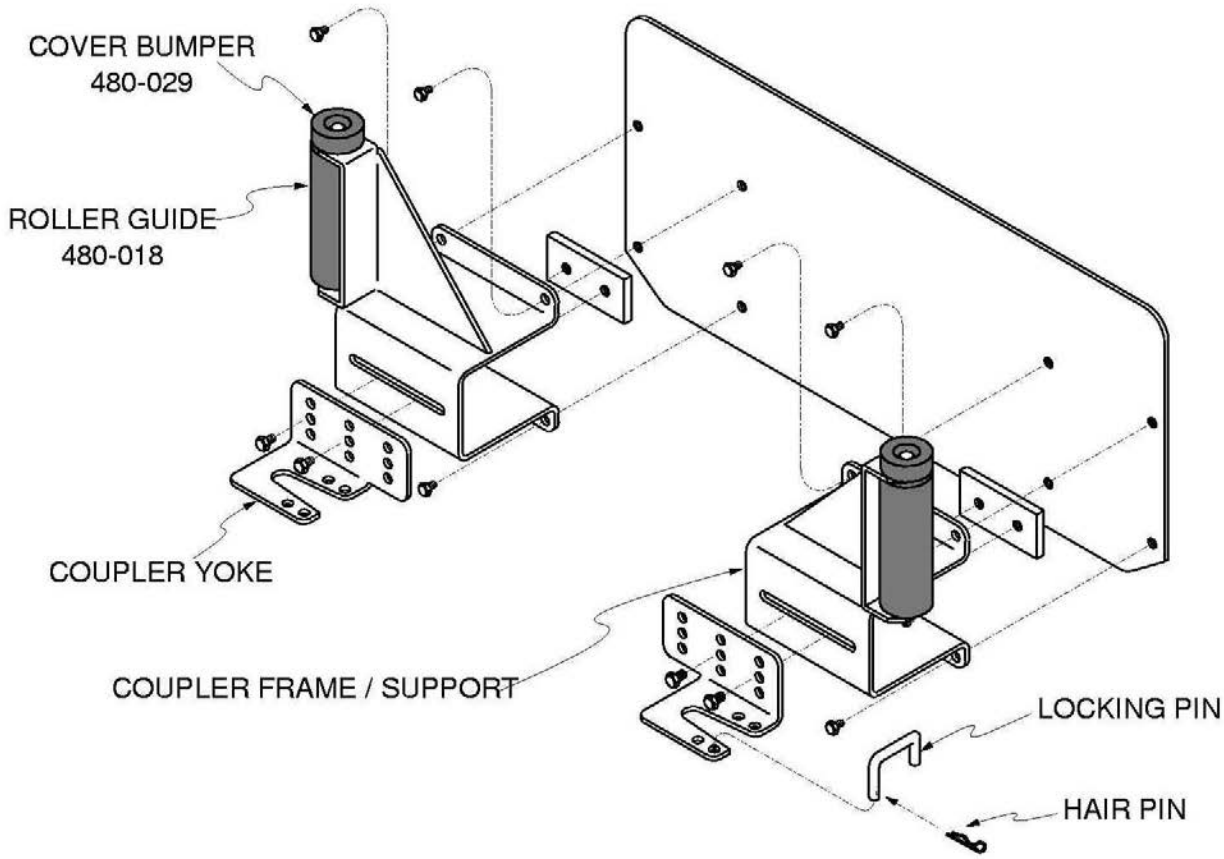
Drive Command: LED lights to indicate drive signal is being sent to motor control.

Low Battery: LED lights when battery voltage is too low to operate machine properly (below approximately 27 volts).

Hour Meter: Hourglass symbol blinks every ten seconds when drive command is present to indicate that meter is timing machine operation.

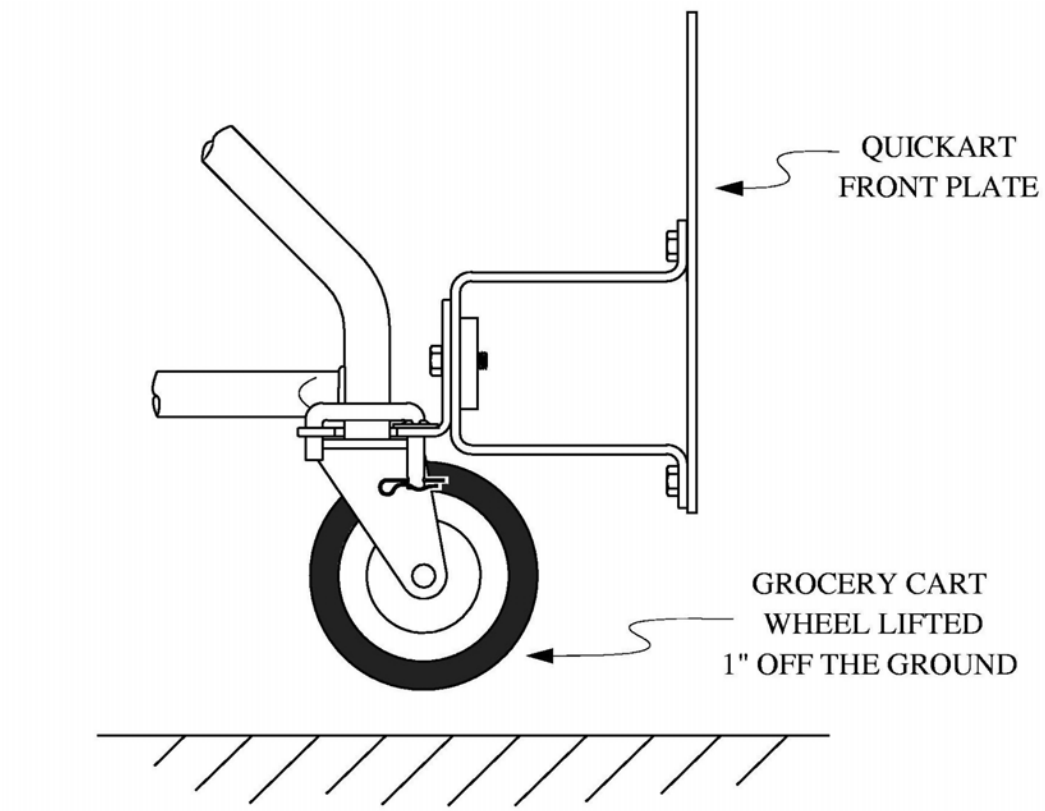
7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

CART COUPLER & ROLLER GUIDE ASSEMBLY

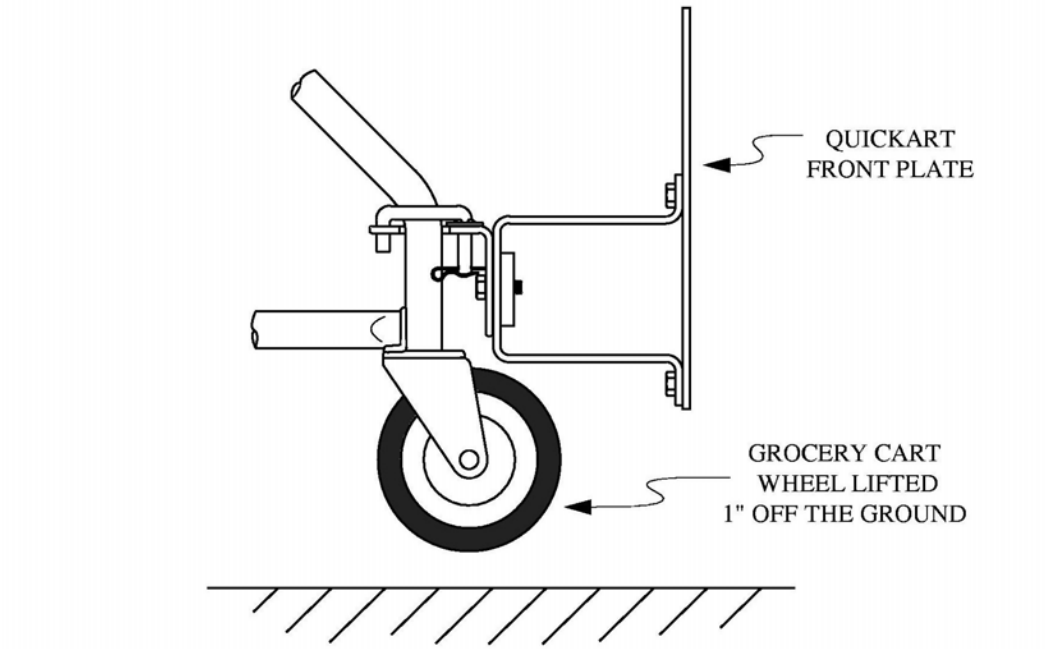


7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com
970-011 Rev. 3/1/06

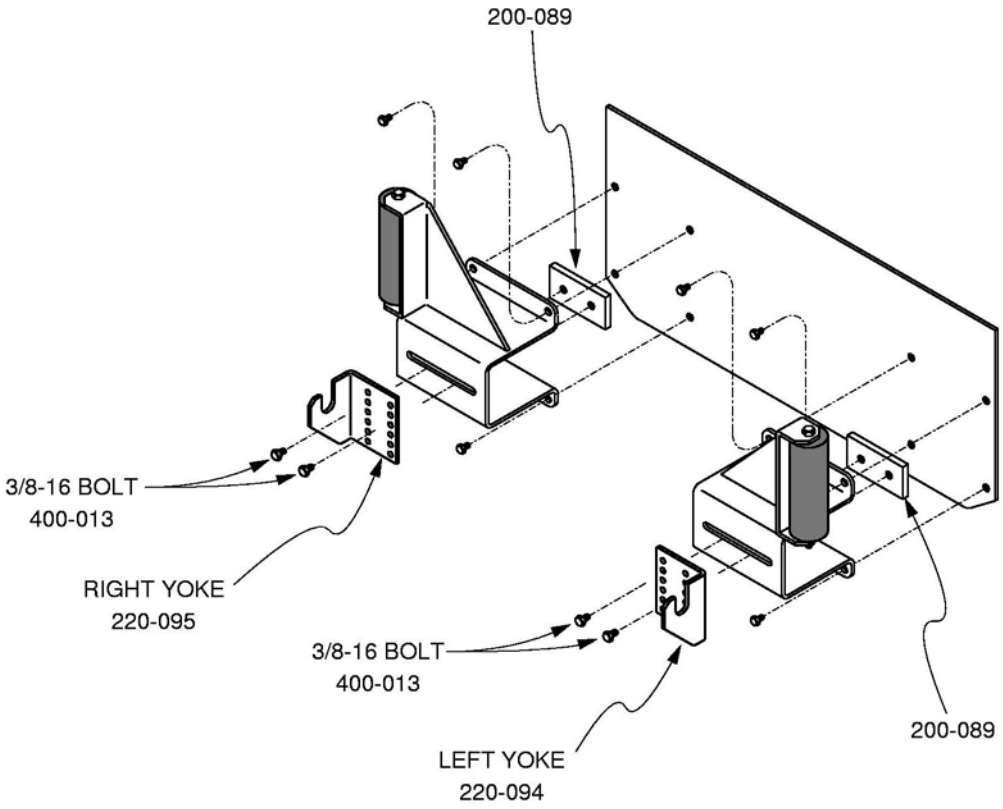
ATTACHING THE COLLECTION CART

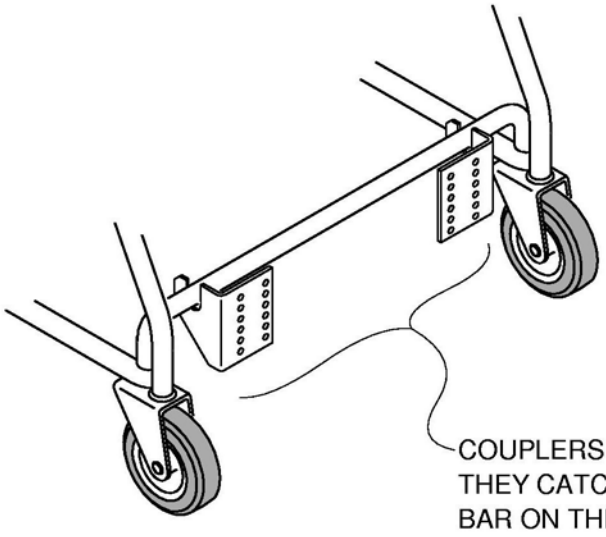


OPTIONAL METHOD OF CART ATTACHMENT



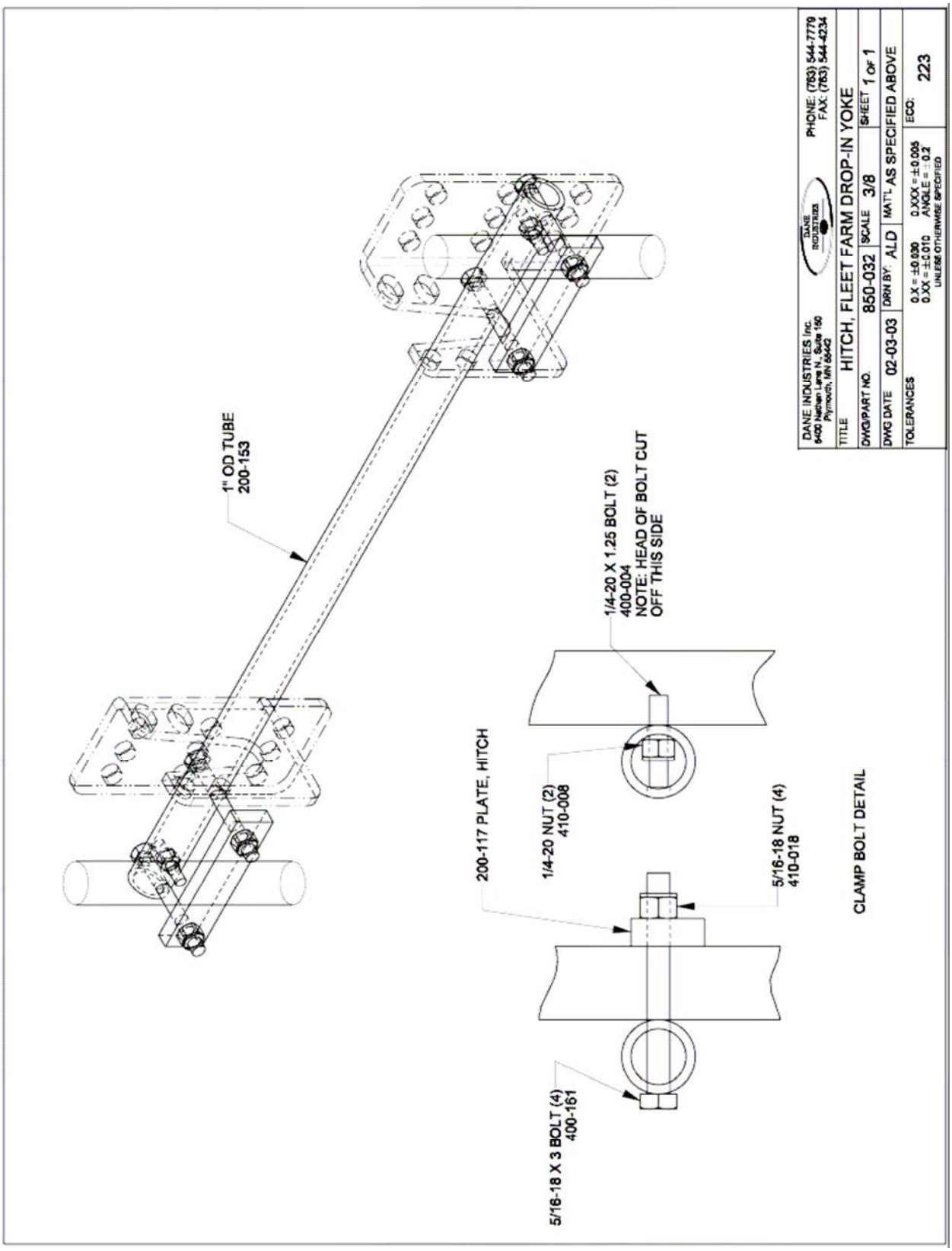
7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com





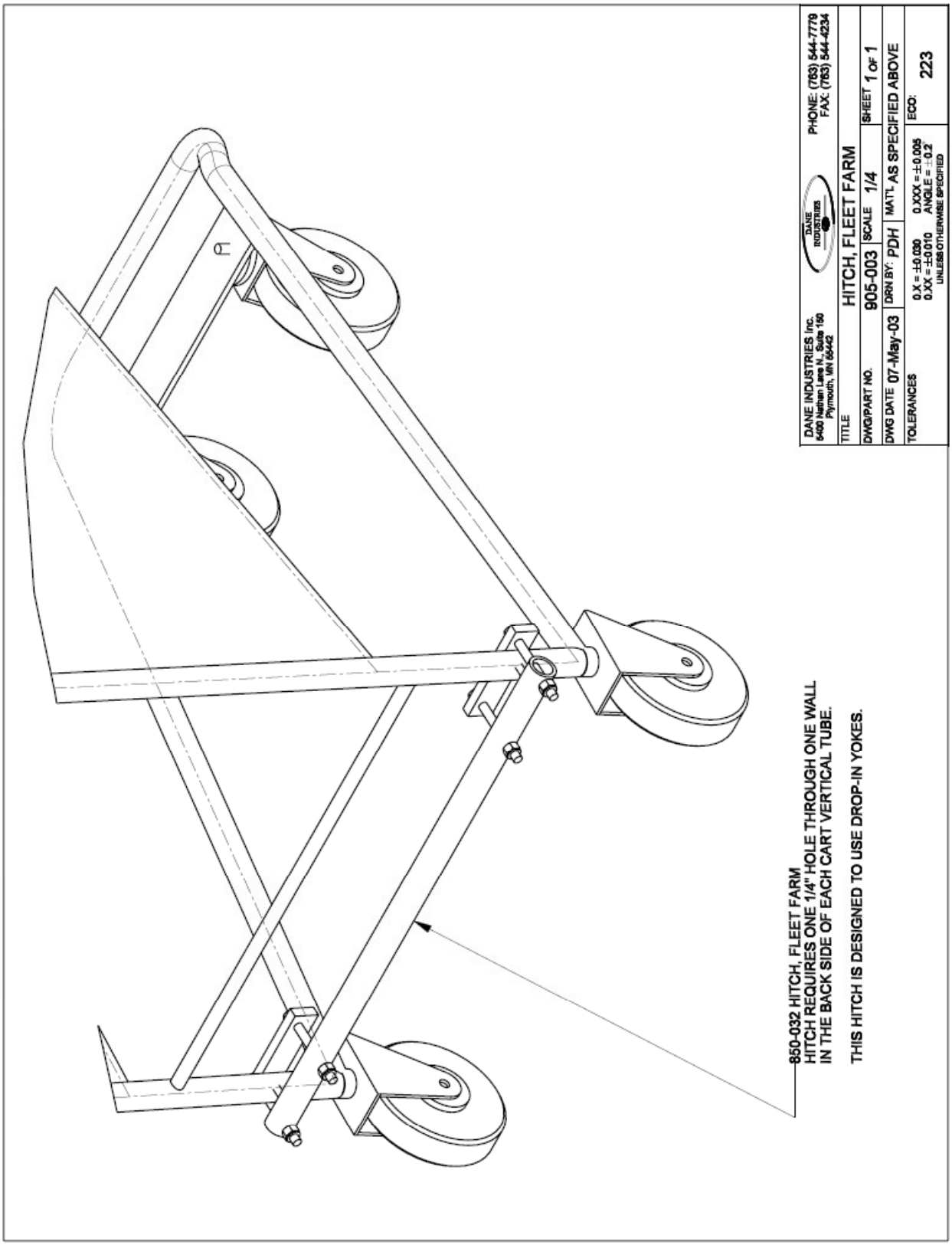
7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QuicKART HITCHES AND YOKES



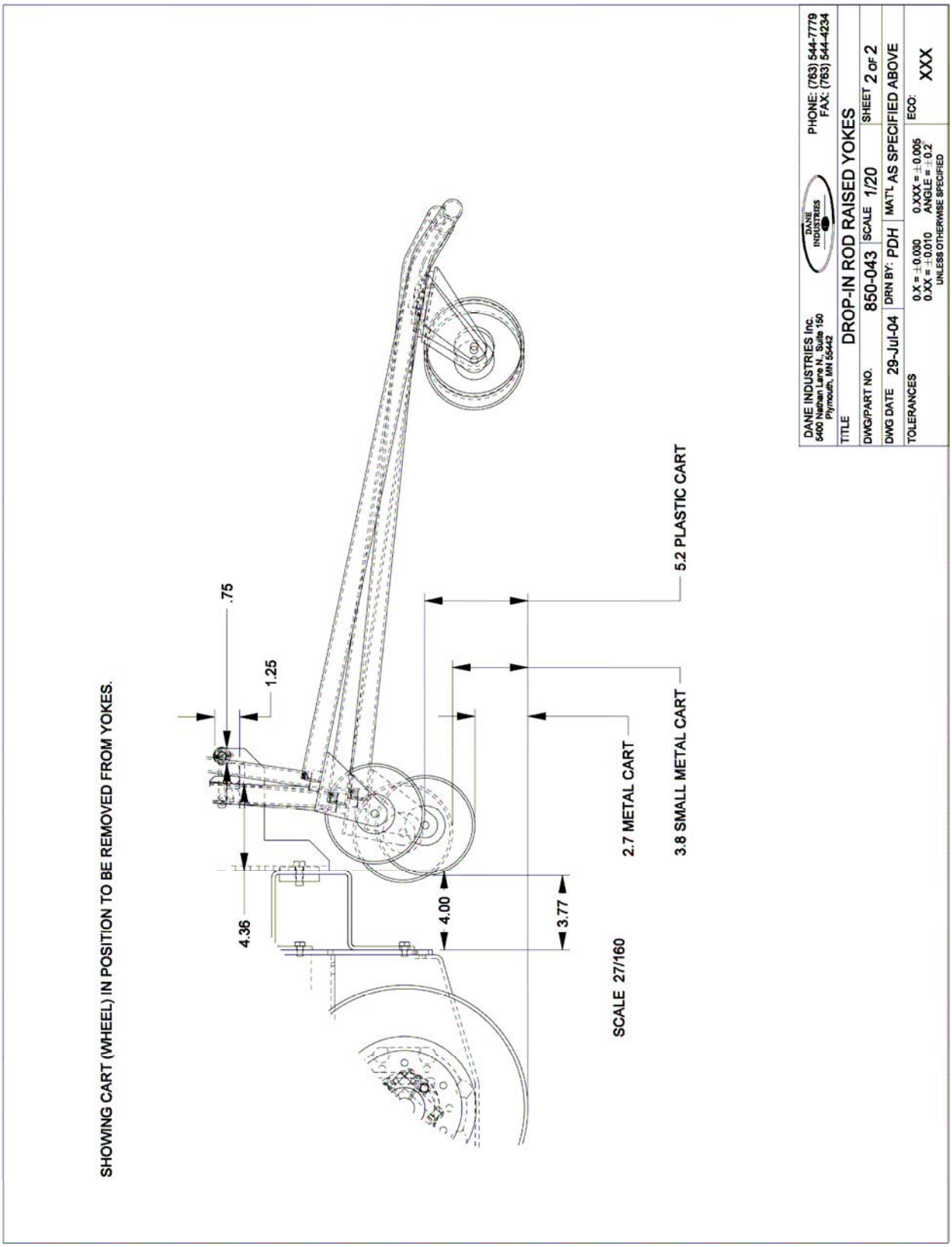
7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

970-011 Rev. 3/1/06


A
850-032 HITCH, FLEET FARM
HITCH REQUIRES ONE 1/4" HOLE THROUGH ONE WALL
IN THE BACK SIDE OF EACH CART VERTICAL TUBE.
THIS HITCH IS DESIGNED TO USE DROP-IN YOKES.
DANE INDUSTRIES Inc.
6400 Nathan Lane N., Suite 160
Plymouth, MN 55442
PHONE: (763) 544-7779
FAX: (763) 544-4234
TITLE
HITCH, FLEET FARM
DWG/PART NO. 905-003
SCALE 1/4
SHEET 1 OF 1
DWG DATE 07-May-03
DRN BY: PDH
MAT'L AS SPECIFIED ABOVE
TOLERANCES
0.X = ±0.030
0.XX = ±0.010
0.XXX = ±0.005
ANGLE = ±.2°
UNLESS OTHERWISE SPECIFIED
ECO:
223

BILL OF MATERIAL
INDEX | PART NO. | DESCRIPTION | QTY
1 | 200-089 | PLATE, COUPLER | 2
2 | 200-094 | PIN, COUPLER LOCKING | 2
3 | 210-216 | YOKE, DROP-IN ROD | 2
4 | 220-568 | COUPLER, RAISED YOKE RH | 1
5 | 220-576 | COUPLER, RAISED YOKE LH | 1
6 | 350-061 | COTTER PIN. 7/64 X .75 | 2
7 | 400-013 | BOLT, 3/8-16 X 1, G5 HHCS | 4
8 | 420-003 | WASHER, 3/8 SAE STD FLAT ZN | 2
9 | 460-038 | SPRING - COMP, .625 OD, .045 WIRE DIA | 2
SCALE 1/8
DANE INDUSTRIES Inc.
5400 Nathan Lane N., Suite 150
Plymouth, MN 55442
PHONE: (763) 544-7779
FAX: (763) 544-4234
TITLE DROP-IN ROD RAISED YOKES
DWG/PART NO. 850-043
SCALE 1/16
SHEET 1 OF 2
DWG DATE 12-Aug-04
DRN BY: PDH
MAT'L AS SPECIFIED ABOVE
TOLERANCES
0.X = ±0.030
0.XX = ±0.010
0.XXX = ±0.005
ANGLE = ±.2°
UNLESS OTHERWISE SPECIFIED
ECO: 245
17.0-25.0
OPT. 20.0-28.0
18.5-26.5
OPT. 21.5-29.5
16.5-24.5
OPT.19.5-27.5
14.3-22.3
OPT. 17.3-25.3
11.249
23.9 STANDARD
26.9 OPTIONAL
WITH REVERSE
INSTALLATION OF
220-568 AND 220-576
HOLE
SPACING
.750
QK2000 10.25-14.00
QK2500 11.75-15.5
(BOTTOM OF ROD)
NOTE:
1. DROP-IN ROD YOKES TO ADAPT TO CARTS WITH 0.5" ROD.
2. YOKES FOR CART REAR ROD HEIGHTS FROM 10.25" TO 14.0"
AND FOR CART SIDE TUBE WIDTHS FROM 14.3" TO OVER 25".
2. YOKES FOR CART FRONT ROD HEIGHTS FROM 10.25" TO 14.0".
AND FOR CART SIDE TUBE WIDTHS FROM 18.5" TO OVER 26.5".
REVERSING THE 220-568 AND 220-576 COUPLERS INCREASES
ALLOWED CART WIDTHS BY 3.0.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com



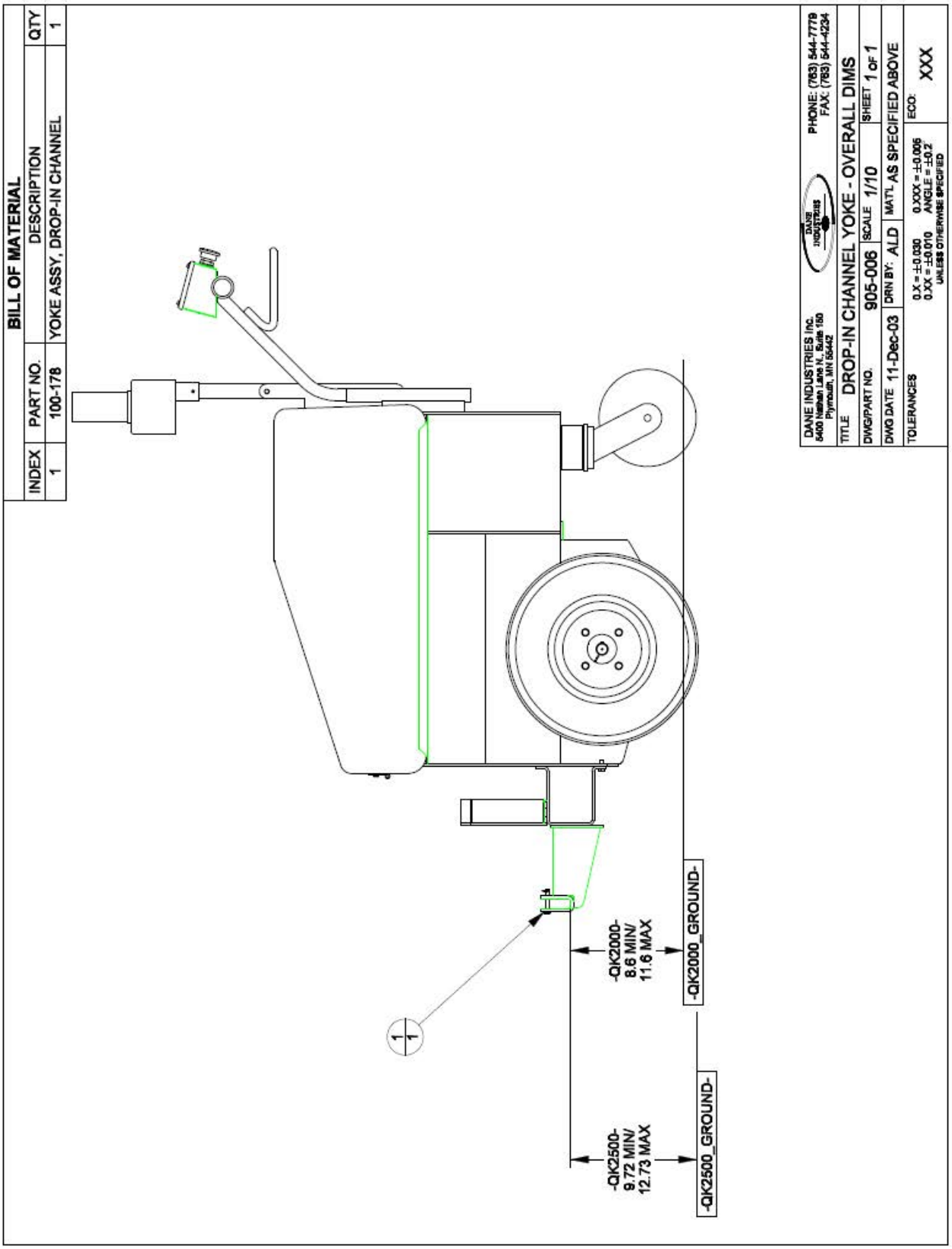
7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

BILL OF MATERIAL
INDEX | PART NO. | DESCRIPTION | QTY
1 | 200-089 | PLATE, COUPLER | 2
2 | 200-094 | PIN, COUPLER LOCKING | 2
3 | 210-216 | YOKE, DROP-IN ROD | 2
4 | 350-061 | COTTER PIN. 7/64 X .75 | 2
5 | 400-013 | BOLT, 3/8-16 X 1, G5 HHCS | 4
6 | 420-003 | WASHER, 3/8 SAE STD FLAT ZN | 2
7 | 460-038 | SPRING - COMP, .625 OD, .045 WIRE DIA | 2
SCALE 1/10
17.3-22.3
19.5 -24.5
20.0 -25.0
21.5-26.5
.750
QK2000 7.63-11.38
QK2500 9.13-12.88
NOTE:
1. DROP-IN YOKES TO ADAPT TO CARTS WITH 0.5" ROD.
2. YOKES FOR CART REAR ROD HEIGHTS FROM 7.63" TO 11.38".
FOR CART SIDE TUBE WIDTHS FROM 17.3" TO OVER 25"
3. YOKES FOR CART FRONT ROD HEIGHTS FROM 7.63" TO 11.38".
FOR CART SIDE TUBE WIDTHS FROM 21.5" TO OVER 26.5".
DANE INDUSTRIES Inc.
5400 Nathan Lane N., Suite 150
Plymouth, MN 55442
DANE INDUSTRIES
PHONE: (763) 544-7779
FAX: (763) 544-4234
TITLE
QK AND DROP-IN ROD YOKES
DWG/PART NO. 850-045
SCALE 11/160
SHEET 1 OF 1
DWG DATE 12-Aug-04
DRN BY: PDH
MAT'L AS SPECIFIED ABOVE
TOLERANCES
0.X = ±.030
0.XX = ±.010
0.XXX = ±.005
ANGLE = ± .2°
UNLESS OTHERWISE SPECIFIED
ECO:
245

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

BILL OF MATERIAL
INDEX | PART NO. | DESCRIPTION | QTY
1 | 210-247 | PLATE, QUICKART HITCH | 1
2 | 220-184 | HITCH, CART CATCHER LATCH | 1
3 | 220-671 | PLATE, HITCH CART CATCHER 5 | 1
4 | 220-672 | HOOK, CART CATCHER | 2
5 | 400-015 | BOLT, 3/8-16 X 1.5 | 4
6 | 400-095 | BOLT, 1/2-13 X 3 SS | 1
7 | 400-109 | BOLT, 5/16-18 X 1 CARRIAGE | 4
8 | 400-203 | BOLT, 1/2-13 X 5 G5 ZN | 1
9 | 410-018 | NUT, 5/16-18 NYLOCK ZN G5 | 4
10 | 410-045 | NUT, 1/2-13 NYLOCK ZN | 2
11 | 420-005 | WASHER, 1/2 SAE STD FLAT ZN | 1
12 | 420-047 | WASHER, FLAT 1/2 X 1.75 X .125 ZN | 2
13 | 460-034 | SPRING, COMPRES 1.00 OD, .144 WIRE DIA. | 1
14 | 460-035 | SPRING, COMPRES, 1.05 OD, .075 WIRE DIA. | 1
10.75
.59 - 1.09
1.56 - 1.81
1.59 -2.09
DANE INDUSTRIES Inc.
5400 Nathan Lane N., Suite 150
Plymouth, MN 55442
PHONE: (763) 544-7779
FAX: (763) 544-4234
TITLE HITCH, QUICKART CART CATCHER STYLE 5
DWG/PART NO. 850-059
SCALE 1/8
SHEET 1 OF 1
DWG DATE 20-Jan-05
DRN BY: PDH
MAT'L AS SPECIFIED ABOVE
TOLERANCES
0.X = ±0.030
0.XX = ±0.010
0.XXX = ±0.005
ANGLE = ±0.2
UNLESS OTHERWISE SPECIFIED
ECO:
254
1.250
4.750
7.000
REMOVE CASTER TO INSTALL THIS PLATE
USE THESE BOLTS.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com



7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

ORIENTATION TO THE QuicKART 2000

MANUAL MODE: Manual Mode is defined as operating the QuicKART while walking behind the QuicKART 2000. Direction is controlled by the handle bar. Speed is controlled by turning the twist grip throttle. Direction is controlled by touching the touch pad switch located on the control panel. When the switch is pressed, the direction changes between forward and reverse as indicated by the direction light.

REMOTE MODE: (See diagram on page 33.) Remote Mode is defined as operating the QuicKART with the remote control while standing or walking alongside the lead cart of the cart chain coupled to the QuicKART 2000. Steering is controlled by guiding the lead cart in the desired direction. Forward speed, brakes and horn are operated with the hand held radio remote control. While in remote mode, the QuicKART will only move forward.

CONTROL PANEL: (See diagram on page 33.) At the top of the Control Panel are five lights that show the percent of remaining battery capacity (Battery Charge Level). When the batteries are fully charged the light at the "100" mark will be lighted. As the QuicKART is used throughout the day, the lights will slowly change from 100 to 80, 60, and 40 until the light for 20 is lighted. The charging level is most accurately shown when the QuicKART is pushing carts. When the 20% capacity light starts to flash on and off, it means there are approximately 4 minutes of remaining power before the QuicKART automatically shuts down. If the QuicKART does shut down, turn the key off for a few minutes, then on again. This may allow time to reach the charging station. Recharge the batteries for at least 8 to 10 hours or until fully recharged.

The control panel also includes a series of 4 lights and panel button switches with the following functions:

The light labeled "**MANUAL**" is for manual operation and "**RADIO**" is for remote operation. The push button switch, just below these two lights, will toggle between manual and remote control. The QuicKART will automatically set to manual operation and forward whenever it is turned on. It cannot be moved from manual to remote operation when the QuicKART is moving, only when it is stopped.

The light labeled "**FORWARD**" is for Forward-Direction operation and "**REVERSE**" is for Reverse-Direction operation. The push button switch, just below these two lights, will toggle between forward and reverse QuicKART direction. The QuicKART will always be set to forward operation whenever it is turned on. The switch will not change the operational direction until the QuicKART is stopped. For safety, the remote mode allows operation only in the forward direction.

Pressing the "**HORN**" button will sound the horn loudly as long as it is pressed.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com 970-011 Rev. 3/1/06

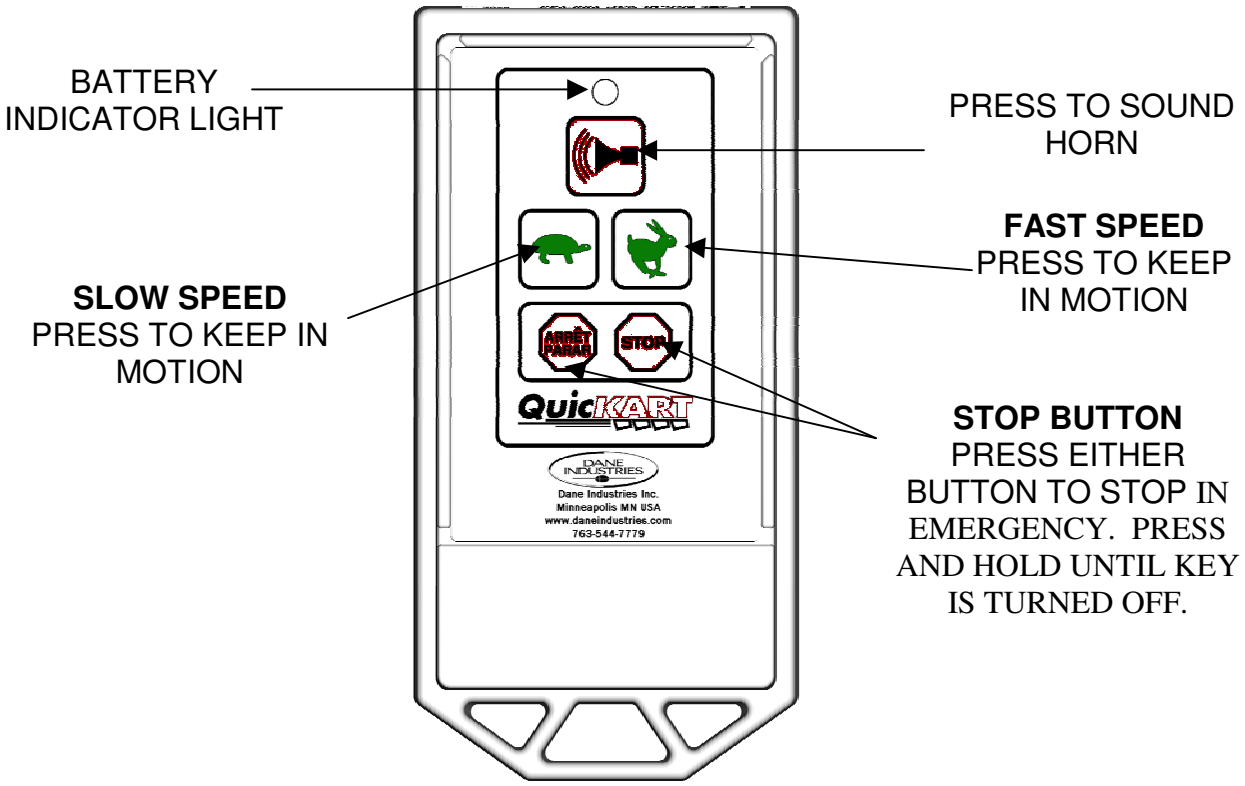
A large red or blue "**EMERGENCY**" shut off button is located on the backside of the control panel. (See top and side views of the QuicKART on pages 16 and 17.) This is located to provide easy access to stop the machine. To restart the machine after the "**EMERGENCY**" shut off button has been activated, pull out the button, turn off the key switch, wait 2 seconds, then turn it back on.

STEERING: In Manual Mode, the QuicKART 2000 is turned by exerting light pressure on the handlebars, to the left or right, similar to steering a bicycle. In Remote Mode, steering is controlled by guiding the lead cart in the desired direction.

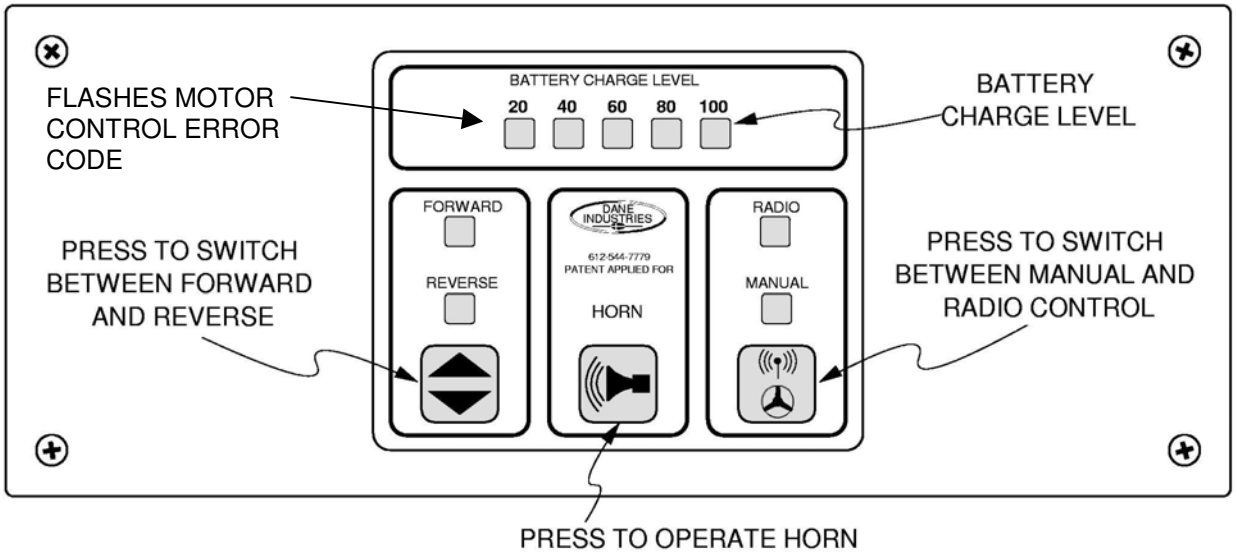
ACCELERATION AND BRAKING: Acceleration and braking of the QuicKART are controlled by the twist grip throttle located on the right handle bar. QuicKART speed is controlled by twisting the throttle, similar to a motorcycle throttle. Braking action occurs as pressure is released. Braking force can be controlled for quick or gradual stops. Twisting the grip slowly brings the QuicKART to a gradual stop. Releasing it rapidly stops the QuicKART very quickly. Maximum braking force is applied when the throttle is fully released.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

REMOTE CONTROL



CONTROL PANEL



7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com
970-011 Rev. 3/1/06

OPERATION OF THE QuicKART 2000

MANUAL MODE:

To operate the QuicKART 2000 in the Manual Mode, perform the following steps:

1) Insert the key into the key-switch located on the control panel. Turn the key clockwise to turn the QuicKART "on".

2) Lights on the control panel will show the system status (see illustration on page 33). Confirm that all systems are working properly.

3) In manual operation, while standing behind the machine, both hands on the handles, slowly twist the throttle control and the QuicKART will start to move forward. Slowly release the pressure on the throttle control and the QuicKART will slow to a stop. When the throttle control is fully released, the electronic brakes will be applied. When moving forward or backward, a sudden release of the throttle control will cause the automatic brake to bring the QuicKART to a sudden halt.

4) To change the direction of travel, the QuicKART must be stopped. Press the direction switch on the control panel and the light for the selected direction will be displayed.

5) To turn the power off, press the emergency shut off button or turn the key counter-clockwise. **Note: Do not leave the machine "ON" and do not leave the key in the switch when unattended.**

6) The collection of grocery carts begins by walking the QuicKART into the parking lot to a location where customers have left carts. To attach the first cart, open the locking U-pin on the left side of the cart coupler assembly. Position the rear of the first shopping cart so that its vertical rear frame is aligned with the yoke openings on the coupler assembly. Lift the cart slightly off the ground and move it sideways until it engages both coupler yokes. Then, put the locking U-pin back into place to secure the shopping cart. It is recommended that the first cart be left permanently in place or if removed at night, identified, so the same cart is always attached to the cart. The coupler yokes can be adjusted up and down and from side to side to accommodate various types and sizes of grocery carts. See illustration on page 22 and 23.

7) Additional shopping carts can now be collected to form a train of a maximum of 30 carts.

REMOTE MODE:

The QuicKART can be operated in the remote mode by pressing the "**Radio/Manual**" switch located on the control panel.

1) While in remote mode, only one person is needed to collect shopping carts. This person gathers the carts and adds them to the train while using the remote control to control forward speed, braking and the warning horn. It is recommended that carts be formed into a line and then the machine brought up to the line in the **"SLOW"** speed to nest the carts. Continue to use the **"SLOW"** speed while operating near entrances and near store guests. **Never** use the "fast" remote speed near guests, the entrance or within the store.

2) "**NEVER**" press on the remote buttons unless you are at the front of the cart chain and controlling the lead cart. **"NEVER"** advance additional carts into the store unless you are at the front of the cart chain. The **"SLOW"** speed is .70mph. The **"FAST"** speed allows movement at a safe walking pace of 2.8mph as carts are returned to the store.

3) Only one button of the remote control is usable at a time. Press the **"SLOW"** or **"FAST"** button for the speed desired for the existing conditions. The QuicKART will briefly coast when the control buttons are released, helping to prevent a separation of carts. If a sudden stop is required, press the **"STOP"** button. Sudden stops will require the operator to hold back the lead cart at the front of the train to prevent cart separation.

4) **In an emergency, press and hold the stop button until you walk over and shut off the key.**

5) When the QuicKART 2000 is stopped, the parking brake automatically engages. This prevents the QuicKART from rolling on slopes or being pushed manually. If it is necessary to push the QuicKART (i.e. dead battery or machine not working), the parking brake can be released by pulling the release lever marked **"Brake Release"** on the lower right corner at the back of the machine. Once the parking brake is released, the QuicKART will not operate until the parking brake is pushed back in. It is recommended that the brake be released only if batteries are dead and manual pushing is required.

6) The QuicKART 2000 follows the train of shopping carts as guided by the cart attendant. The actual turning radius of the cart chain is a function of the design of the shopping carts being used. The tighter the carts nest together the longer the turning radius will be. After some experience the QuicKART operator will become familiar with this and be able to judge what turns will be practical. In practice the operator places one hand on the cart, at the front of the train, walking along side and guiding the cart in the desired direction. The other hand is used to operate the hand held remote control transmitter. When turning the cart chain it is easier to maintain safe footing by leaning against the lead cart rather than pulling.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

BATTERY CHARGING

The QuicKART 2000 is powered by three, 12-volt, Deep Cycle batteries. Under normal usage they will power the QuicKART for 10 or more hours, when the ambient temperatures are above approximately 40 degrees F. Colder temperatures will reduce the operating time of the batteries and increase the charging time. To optimize battery power, store the QuicKART in a room with a temperature of at least 50 degrees F.

To recharge the batteries, park the QuicKART in a well-ventilated location near an electrical outlet. The QuicKART must be turned off and the key removed.

FIRST, plug the 10-foot extension cord into the connector located at the lower left rear of the QuicKART. **Use special care to ensure the extension cord is properly seated inside the connector. Failure to do so can cause improper charging or damage to the battery charger.**

SECOND, connect the charger's 10-foot power extension cord into a wall receptacle. The battery charger will automatically shut off when the batteries are fully charged. This takes between eight to ten hours, depending upon initial state of charge and battery condition. **Make sure the power to the wall receptacle is not turned off during the nightly recharging time.**

To put the QuicKART back into service, after the batteries are fully charged, disconnect the charger's power extension cord from the wall receptacle and from the lower receptacle at the lower left rear of the QuicKART. Store the extension cord in an appropriate location.

Lights on the battery charger show the charging rate. Fully discharged batteries will result in a charging rate of up to 15 amperes. As the batteries become fully charged this rate will drop to less than 10 amperes. A solid yellow light indicates maximum charge, a yellow and flashing green indicate partial charge completion. A green light indicates completion of charge. The red light indicates AC power is connected and on.

WARNING

Do not use long extension cords. Use the 10-foot cord supplied with the machine. Find a location for re-charging that is close to an electrical outlet receptacle. If another cord must be used, it must be 16 gauge or larger and no longer than 10 feet in length.

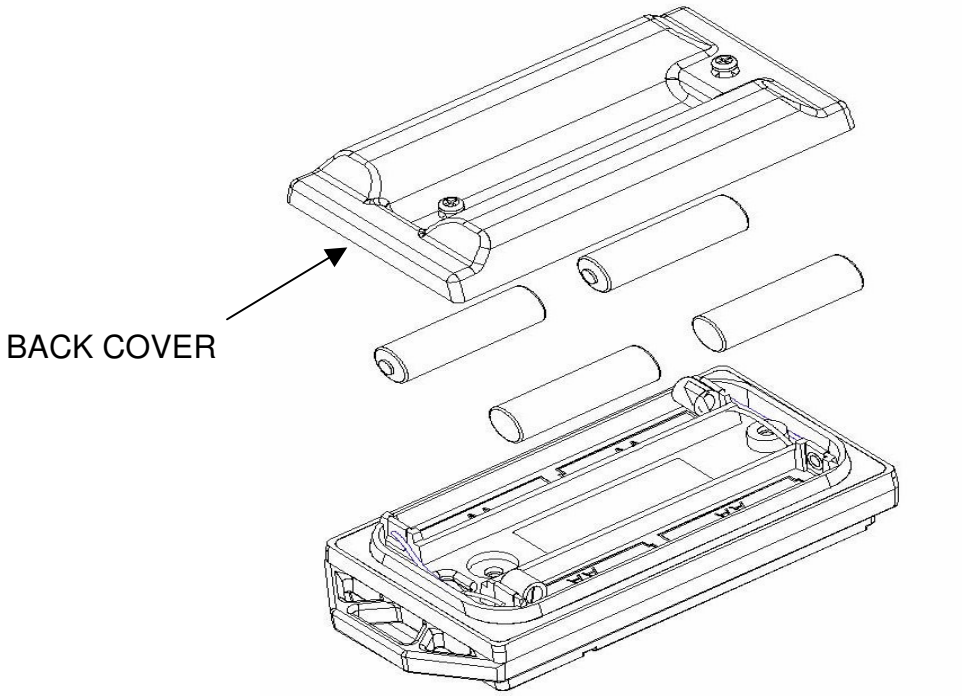
REMOTE CONTROL: BATTERY CHANGING

Refer to Diagrams on page 38.

1. The remote control is to be taken apart only when the batteries need replacing. There are no adjustments or switches inside the module. As long as the small light on the remote panel lights-up the battery does not need replacing.
2. Before opening the remote turn off the QuicKART that had been using this remote. If another remote is being used by this QuicKART it is OK to proceed.
3. To open remote control, place the control panel face down on a table top and use a medium size Phillips screw driver to remove the two (2) screws from the corners of the remote's back cover.
4. After the screws are removed, leave the remote face down and remove the back cover.
5. To replace the batteries, take out the old batteries and replace them with new, ensuring that the new batteries are inserted as diagramed inside the battery compartment.
6. Properly dispose of the old batteries in an environmentally correct depository.
7. Examine the inside of the remote for any signs of condensation or water. If signs of moisture are present, allow the compartment to dry fully before replacing the back.
8. Before replacing the back, ensure that the gray rectangular gasket around the edge of the battery compartment is in good condition. If the gasket is damaged, return the remote to Dane Technologies for repair.
9. Also, ensure that the red and black wires leading away from the battery terminals and the black wire at the opposite end of the remote are intact. If they are broken, return the remote to Dane for repair
10. The QuicKART should be **"off".** Before replacing the back, ensure the panel light comes on when any one of the function buttons is pressed.
11. Replace the back with the two Phillips screws.
12. Reprogram the remote control as described on page 38.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

REMOTE CONTROL: BATTERY CHANGING DIAGRAM



PROGRAMMING THE REMOTE CONTROL

Each hand-held remote control transmitter operates on a unique pre-programmed code. For the QuicKART to operate in the Remote Mode, the receiver, which is in the beacon tower, must be programmed to match the hand held remote control. Every time the batteries in the remote control are replaced, the remote control needs to be reprogrammed to match the receiver code in the beacon tower. If the QuicKART stops responding to the remote control, check the status of the remote battery by depressing one of the remote buttons. If the red LED light does not illuminate, change the battery and reprogram the remote control as follows:

1) Turn on the QuicKART.
2) Switch to "**RADIO**" on the control panel.
3) Hold remote about arms length from the beacon post.
4) Simultaneously push these three buttons:
   - Rubber button located on the underside of the square box on the beacon post (see pages 16 and 17)
   - Stop button on the hand-held remote (page 33);
   - Horn button on the hand-held remote (page 33).
5) The horn should sound indicating the reprogram is complete and the QuicKART is ready for operation.
6) If the horn did not sound, retry the above steps making sure that the switch on the control panel is on "**RADIO**". If the horn still did not sound, you can also determine if the reprogram was successful by pressing the slow button on the remote to see if the QuicKART now responds to the remote signal.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QuicKART 2000-2500 MAINTENANCE NOTES

Check the QuicKART daily, for safe operation.

Routine maintenance should only be performed by those permitted by federal and state age regulations. Repairs should only be completed by Dane Technologies or an authorized service technician. Federal law requires that you must be at least 18 years old to service the batteries of the QuicKART.

General condition: Keep the QuicKART free from the accumulation of grease, dirt, and other materials.

If the QuicKART malfunctions in any way, turn it off and remove the key. Immediately report the malfunction to the appropriate store manager as well as Dane Technologies. Do not use the QuicKART until it has been repaired by an authorized service technician.

WARNING

Do not permit open flame, sparks or smoking during maintenance. Adequate ventilation is essential for safety. Do not lay metal objects on the batteries.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

D= Daily, M= Monthly, S-A = Semi-annually, Y=Yearly >>>	D	M	S-A	Y
Inspect throttle, turn keyswitch to "On". The cart should not move. Check that the RH throttle grip moves freely in a CW direction. The cart should move forward. Push the reverse button, the cart should move backward.	X			
Test the brake system. With the keyswitch "Off", try to move the machine. The brake should keep the drive wheels from rotating.	X			
Test the Emergency shut-off button. With the cart in "Manual" or "Remote", pressing the Emergency shut-off will disable all controls and stop the machine.	X			
Strobe Light: Check for damage and proper operation.	X			
Remote: Check for damage. With the cart in "Remote", check operation with all buttons. The remote should operate up to 100' from the machine.	X			
Charge batteries overnight, every night.	X			
Check couplers and yokes for unsafe wear, loose or missing fasteners, and safe connection.	X			
Batteries: Inspect loose connections, frayed insulation, and corrosion. Clean away corrosion. Check charger operation		X		
Wiring: Inspect all wiring and electrical connections for loose connections, frayed or deteriorated insulation, exposed wire, and broken or missing hardware.		X		
Maintenance Type Batteries: Check water levels, add **distilled water** as necessary.		X		
Check the machine for damaged or missing labels.		X		
Check body for damage. Check all bolts, fasteners and connections for tightness and wear.		X		
Check tires and caster wheel for wear, bent rims and missing or loose lug nuts.		X		
Check the antennas for damage.		X		
Check tires and caster wheel for wear, bent rims and missing or loose lug nuts.		X		
Check the AC charger cord for frayed or deteriorated insulation and exposed wire.			X	
Apply grease to rear swivel wheel using a standard grease gun, two places.			X	
Have your authorized service center check your QuicKART completely.				X

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

CHANGING FRONT TIRES

FRONT DRIVE TIRES:

Turn QuicKART off and remove key.

QuicKART must be on a flat surface. Make sure the automatic brake is functional and on.

Use protective eye wear at all times.

1) Slightly loosen the four (4) lug nuts, about 1/2 turn, from the wheel needing service. Use a 9/16-inch socket on the QK 2000 12-inch tires. Use a 5/8-inch socket on the 16-inch tires for the QK 2500. **IMPORTANT**: Do not remove any of the nuts; only slightly loosen them while the wheel is still on the ground.

2) Use a jack to lift the front of the QuicKART off the ground approximately 2 to 3 inches. Insert a sturdy and stable block under the frame to hold it securely in this elevated position.

3) Unscrew the four 9/16-inch or 5/8-inch, front wheel lug nuts and place them in a location where they will not become lost. Remove the wheel. The new or repaired wheel is placed back on the front hub with the tire stem facing out. Replace the 4 lug nuts with the beveled side toward the inside and tighten.

Using the jack, lift the QuicKART off the supporting block (see item #2 above). Remove the block and use the jack to lower the QuicKART to the ground. Tighten the 4 lug nuts again ensuring that they are tightened to a minimum of 50 foot-pounds torque.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

CHANGING REAR TIRE

REAR CASTERED TIRE:

Turn QuicKART off and remove key.

QuicKART must be on a flat surface. Make sure the automatic brake is functional and on.

Use protective eyewear at all times.

1) Lift the back of the QuicKART so the rear caster wheel is approximately 2 inches off the ground. This is accomplished by using a jack under the rear frame of the QuicKART, in the center. Once the QuicKART is lifted, place a sturdy and stable block in each corner then lower the jack so the weight of the QuicKART is resting on the blocks. Also place blocks on the front wheels to keep the QuicKART from rolling.

2) With two 9/16" wrenches, remove the four bolts holding the caster assembly to the frame. Save the hardware and use it when replacing the wheel. For the QuicKART 2500 use two 9/16" wrenches to remove the four bolts holding the caster assembly to the two caster spacers bolted to the bottom of the frame.

3) When replacing the caster assembly, reuse the saved hardware. Insert bolts, apply nuts and tighten.

4) Using the jack, lift the QuicKART off the supporting blocks (Item #1 above), remove the blocks then lower the QuicKART to the ground.

Note: Variations in the hardware configuration may occur. Save all hardware and use it as it was removed when replacing wheel.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

TECHNICAL SPECIFICATIONS

Weight (with batteries)	510 pounds 525 pounds (QK 2500)
Length	50 inches (4 feet, 2 inches)
Width	27.5 inches (2 feet, 3.5 inches)
Height (to handles)	40.5 inches (3 feet, 4.5 inches)
Height (to top of beacon)	54 inches (4 feet, 6 inches)
Front wheel tread	22 inches
Wheel base	19.5 inches forward 14 inches reverse
Turning radius	less than 2 feet
Tires, front	12 inches (QK 2000) 16 inches (QK 2500)
Tires, rear	8 inches diameter
Chassis	Welded steel with powder coating
Body	Fiberglass or ABS polymer
Safety	40 amp secondary breaker on QK2000 70 amp fuse (QK 2500) Automobile type horn Beacon warning light Brake light Emergency stop switch Automatic brake Unique remote security code
Brakes	Electronic dynamic Mechanical
Electrical system	Three 12-volt batteries
Charger	Input 120 VAC 36 VDC, 15 amperes max.
Speed	Forward 0 – 3.0 MPH max. Reverse 0 – 1.5 MPH max. Remote **slow** 0.70 MPH (QK2500 Remote **slow** 1.0 MPH) Remote **fast** 2.80 MPH

REMOTE CONTROL:
Power Requirement: 4 Standard 1.5 volt AA radio batteries,

Range: 100 feet

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QuicKART WARRANTY

1) Parts: One (1) Year Limited Warranty from date of shipment.
2) Labor: Ninety (90) Day Limited Warranty from date of shipment.
3) Batteries: Covered by the manufacturer's warranty.

1) PARTS – Limited Warranty

All parts except batteries (covered by battery manufacturer's warranty), tires, and circuit breakers needing resetting are warranted by Dane Technologies to be free of defects in material and workmanship for a period of one (1) year from date of shipment. This warranty **does not include** tire wear or wear and tear caused by abuse, negligence, freight damage or damage caused by improper use or care, or by external sources such as fires, floods or other acts of God.

Should any component fail during the first year of ownership except those mentioned as not under warranty, the component in question is to be returned to Dane Technologies or to an authorized Dane Technologies representative for inspection. If the component has failed due to a defect in material or workmanship, it will be exchanged or repaired at the discretion of Dane Technologies at no charge to the QuicKART owner.

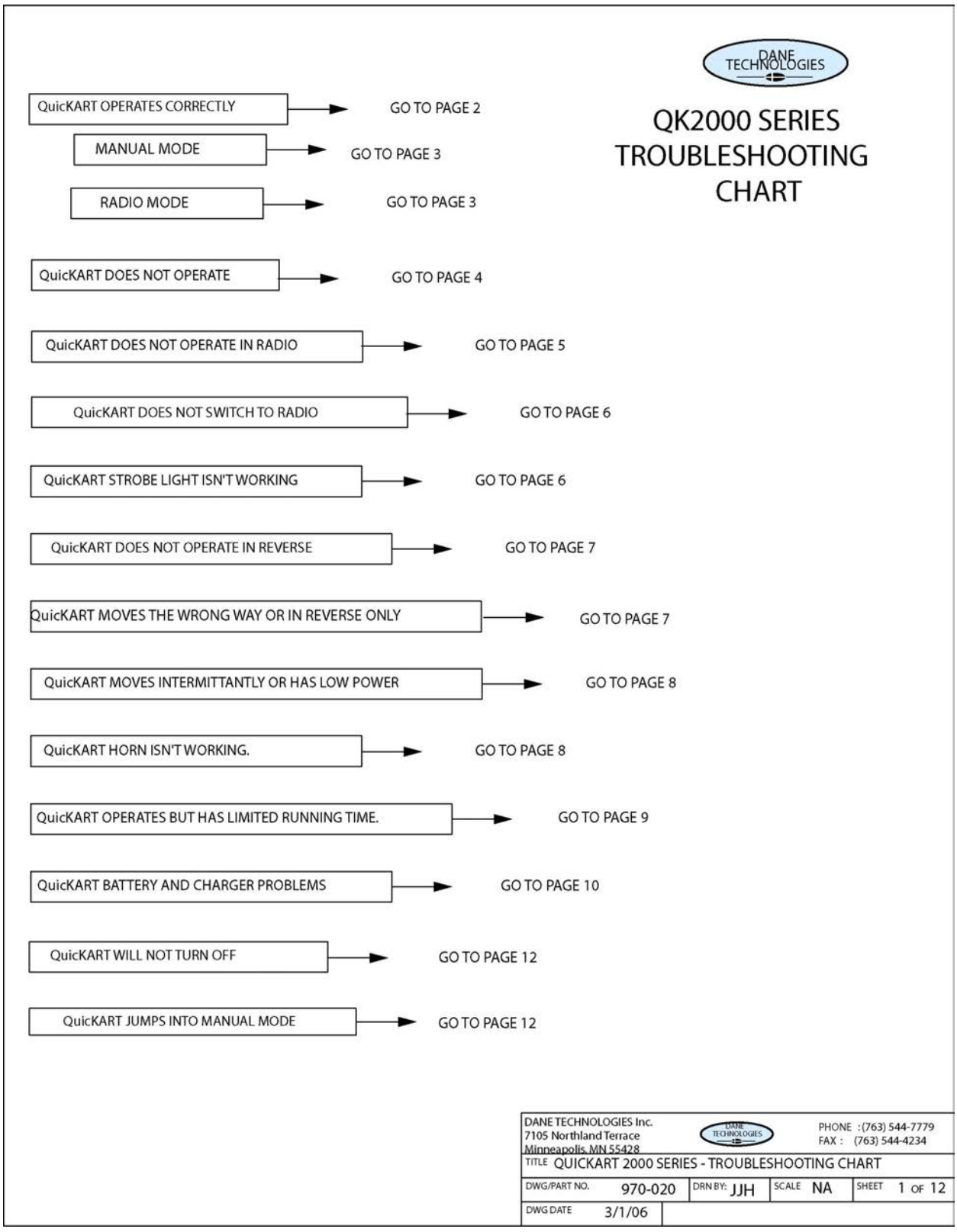
Dane Technologies, Inc. will cover the costs of shipping parts covered under warranty to the customer based on UPS standard ground rates.

2) LABOR – Limited Warranty

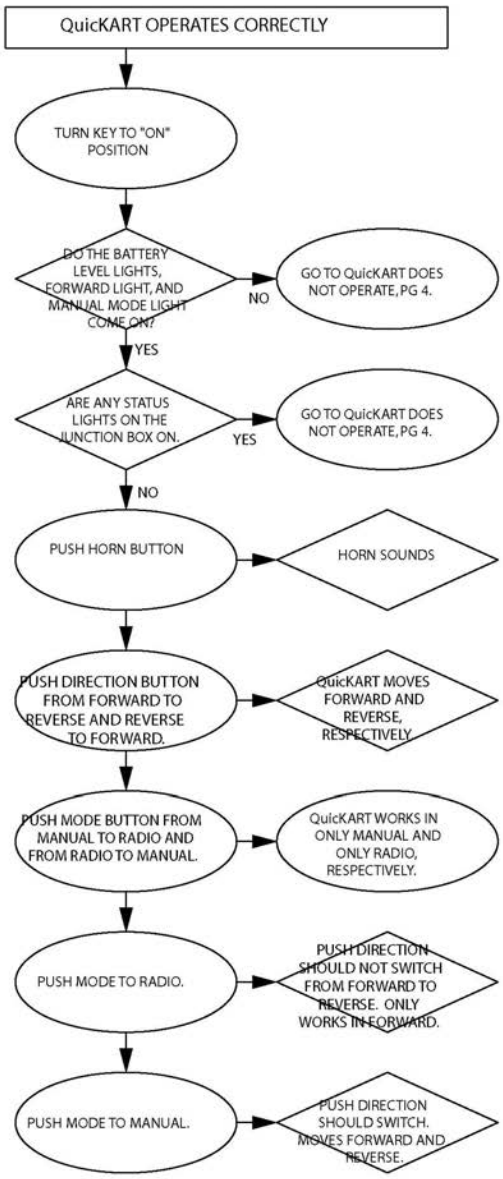
Dane Technologies will cover labor charges for work performed in the field for ninety (90) days from the date of shipment as a result of defects in materials or workmanship. Charges incurred for failure to charge and maintain the batteries in the QuicKART or change the battery in the hand held remote are exempted. Non-warranty service performed during the same visit as for warranty service is not covered by the warranty.

Rev. 3-1-06

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

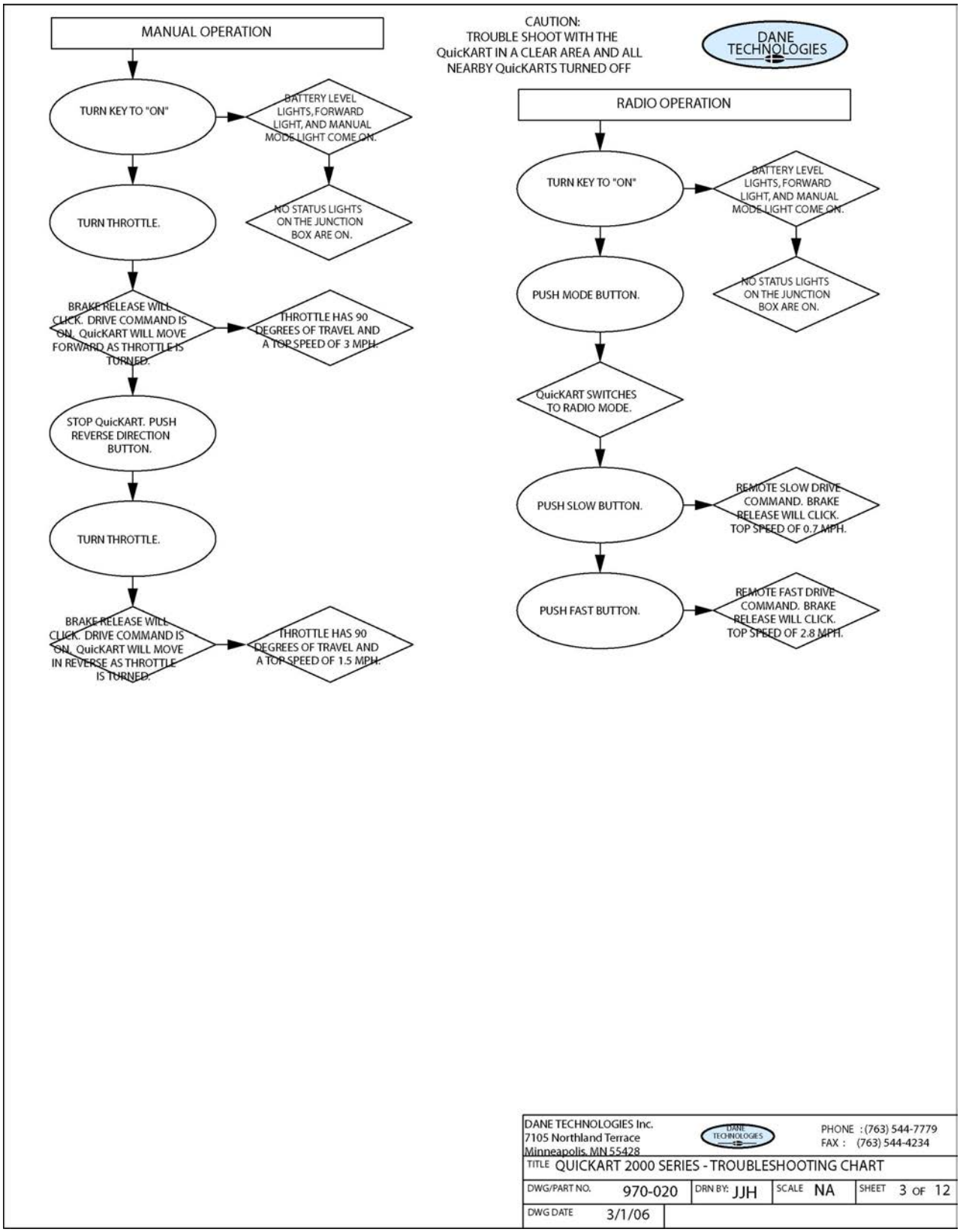

DANE TECHNOLOGIES
QK2000 SERIES TROUBLESHOOTING CHART
QuicKART OPERATES CORRECTLY → GO TO PAGE 2
MANUAL MODE → GO TO PAGE 3
RADIO MODE → GO TO PAGE 3
QuicKART DOES NOT OPERATE → GO TO PAGE 4
QuicKART DOES NOT OPERATE IN RADIO → GO TO PAGE 5
QuicKART DOES NOT SWITCH TO RADIO → GO TO PAGE 6
QuicKART STROBE LIGHT ISN'T WORKING → GO TO PAGE 6
QuicKART DOES NOT OPERATE IN REVERSE → GO TO PAGE 7
QuicKART MOVES THE WRONG WAY OR IN REVERSE ONLY → GO TO PAGE 7
QuicKART MOVES INTERMITTANTLY OR HAS LOW POWER → GO TO PAGE 8
QuicKART HORN ISN'T WORKING. → GO TO PAGE 8
QuicKART OPERATES BUT HAS LIMITED RUNNING TIME. → GO TO PAGE 9
QuicKART BATTERY AND CHARGER PROBLEMS → GO TO PAGE 10
QuicKART WILL NOT TURN OFF → GO TO PAGE 12
QuicKART JUMPS INTO MANUAL MODE → GO TO PAGE 12
DANE TECHNOLOGIES Inc.
7105 Northland Terrace
Minneapolis, MN 55428
PHONE :(763) 544-7779
FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART
DWG/PART NO. 970-020
DRN BY: JJH
SCALE NA
SHEET 1 OF 12
DWG DATE 3/1/06

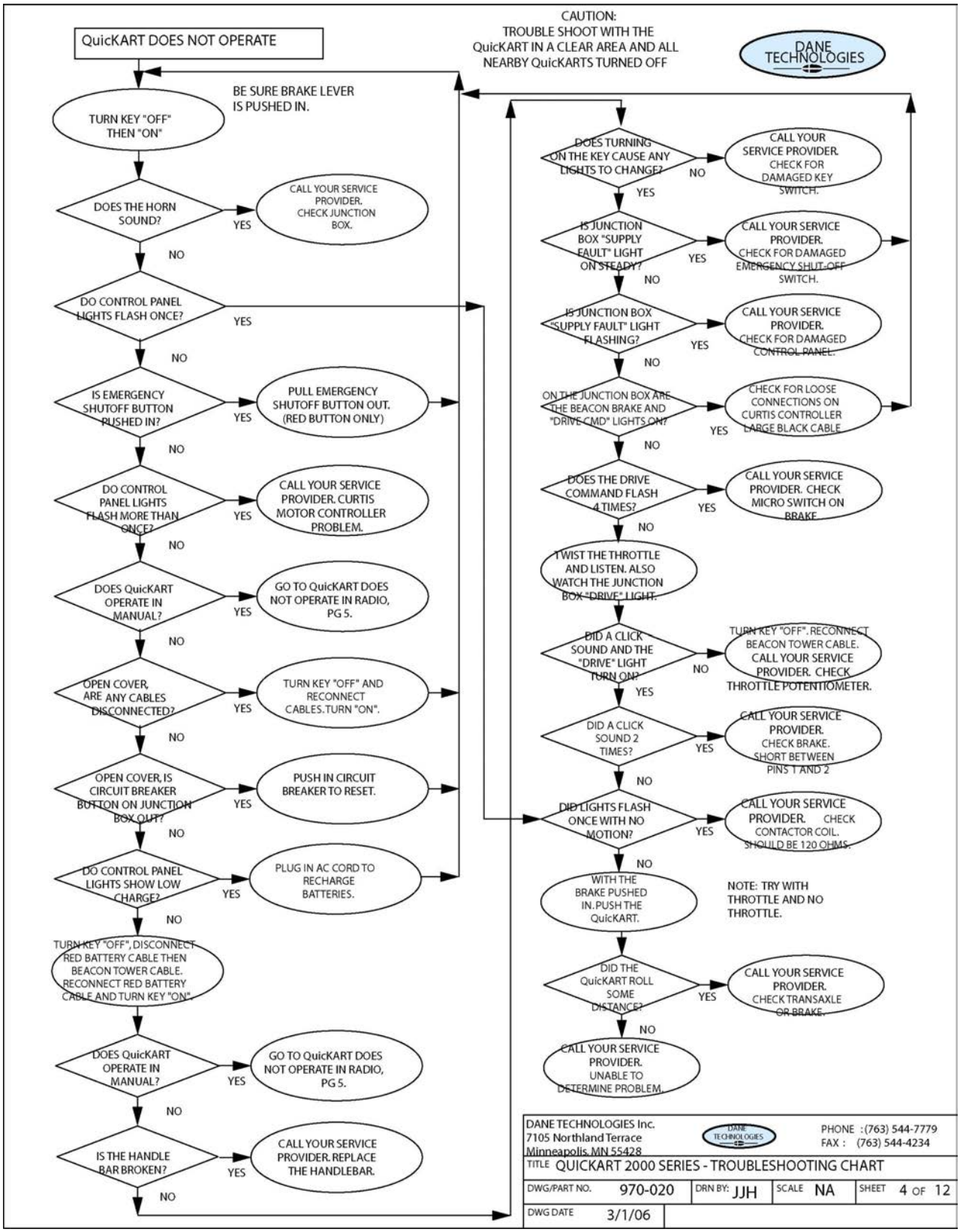
CAUTION: TROUBLE SHOOT WITH THE QuicKART IN A CLEAR AREA AND ALL NEARBY QuicKARTS TURNED OFF

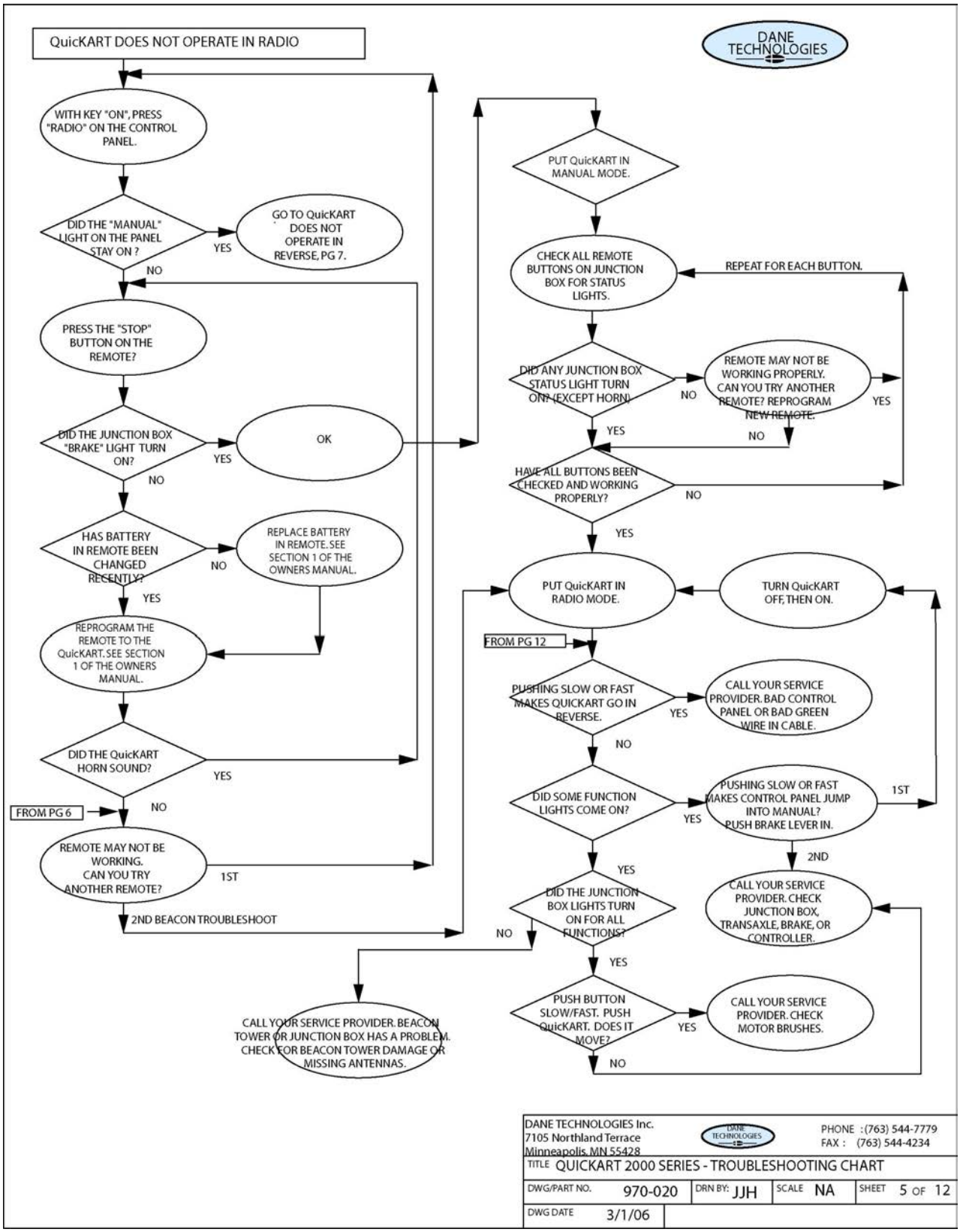

QuicKART OPERATES CORRECTLY
TURN KEY TO "ON" POSITION
DO THE BATTERY LEVEL LIGHTS, FORWARD LIGHT, AND MANUAL MODE LIGHT COME ON?
NO
GO TO QuicKART DOES NOT OPERATE, PG 4.
YES
ARE ANY STATUS LIGHTS ON THE JUNCTION BOX ON.
YES
GO TO QuicKART DOES NOT OPERATE, PG 4.
NO
PUSH HORN BUTTON
HORN SOUNDS
PUSH DIRECTION BUTTON FROM FORWARD TO REVERSE AND REVERSE TO FORWARD.
QuicKART MOVES FORWARD AND REVERSE, RESPECTIVELY.
PUSH MODE BUTTON FROM MANUAL TO RADIO AND FROM RADIO TO MANUAL.
QuicKART WORKS IN ONLY MANUAL AND ONLY RADIO, RESPECTIVELY.
PUSH MODE TO RADIO.
PUSH DIRECTION SHOULD NOT SWITCH FROM FORWARD TO REVERSE. ONLY WORKS IN FORWARD.
PUSH MODE TO MANUAL.
PUSH DIRECTION SHOULD SWITCH. MOVES FORWARD AND REVERSE.

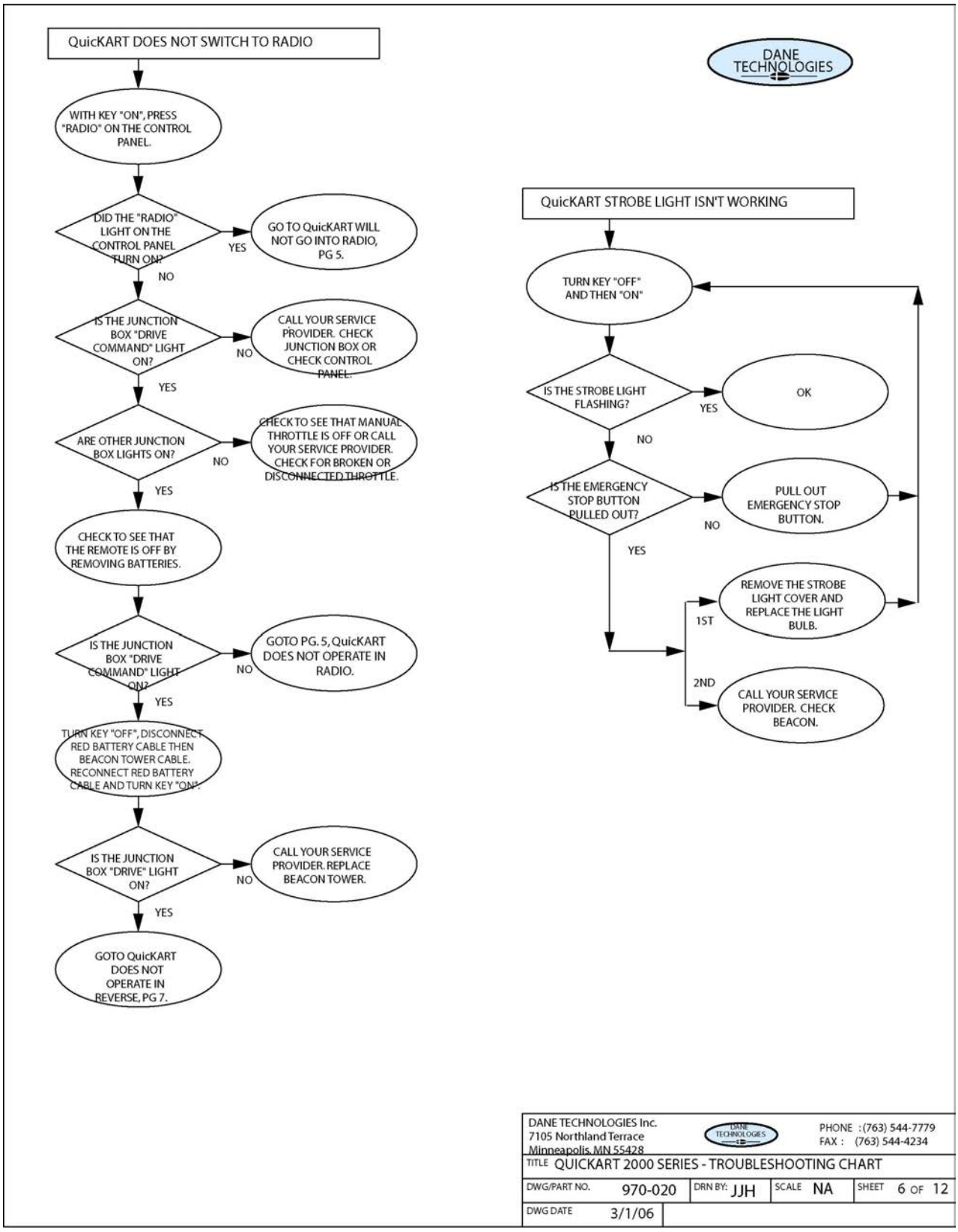
DANE TECHNOLOGIES Inc.
7105 Northland Terrace
Minneapolis, MN 55428
PHONE : (763) 544-7779
FAX : (763) 544-4234

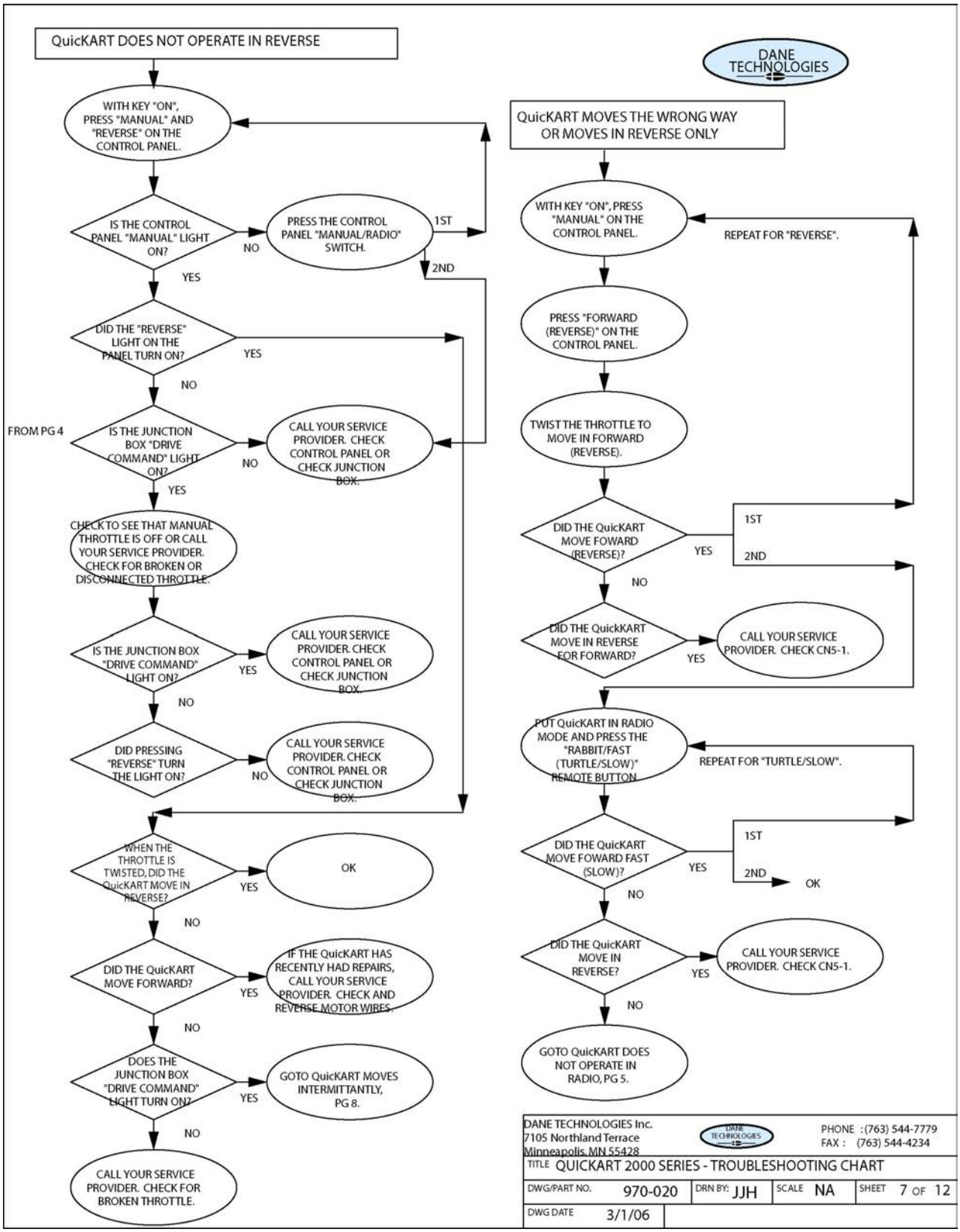
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART			
DWG/PART NO. 970-020	DRN BY: JJH	SCALE NA	SHEET 2 OF 12
DWG DATE 3/1/06			

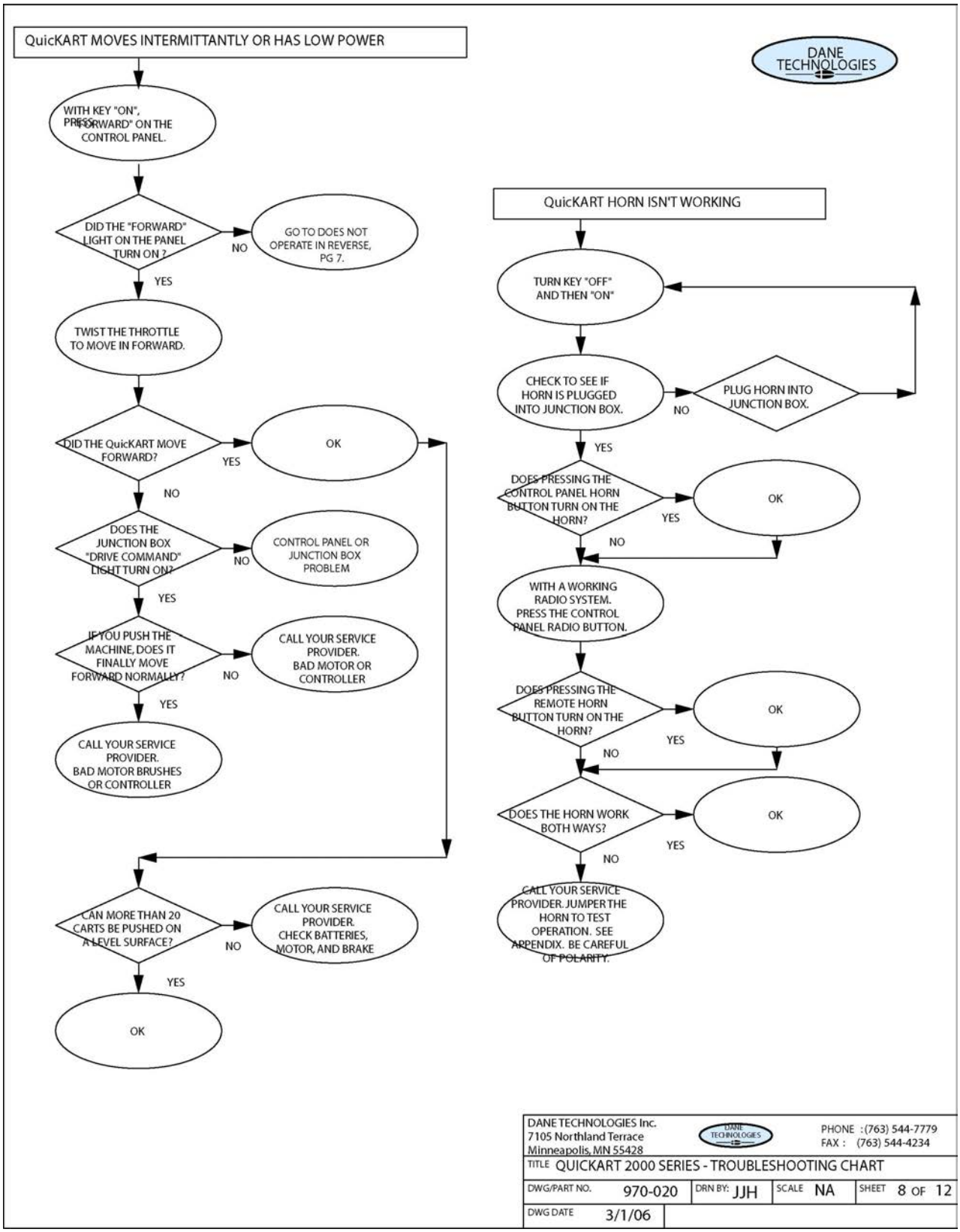

MANUAL OPERATION
TURN KEY TO "ON"
BATTERY LEVEL LIGHTS, FORWARD LIGHT, AND MANUAL MODE LIGHT COME ON.
TURN THROTTLE.
NO STATUS LIGHTS ON THE JUNCTION BOX ARE ON.
BRAKE RELEASE WILL CLICK. DRIVE COMMAND IS ON. QuicKART WILL MOVE FORWARD AS THROTTLE IS TURNED.
THROTTLE HAS 90 DEGREES OF TRAVEL AND A TOP SPEED OF 3 MPH.
STOP QuicKART. PUSH REVERSE DIRECTION BUTTON.
TURN THROTTLE.
BRAKE RELEASE WILL CLICK. DRIVE COMMAND IS ON. QuicKART WILL MOVE IN REVERSE AS THROTTLE IS TURNED.
THROTTLE HAS 90 DEGREES OF TRAVEL AND A TOP SPEED OF 1.5 MPH.
CAUTION:
TROUBLE SHOOT WITH THE QuicKART IN A CLEAR AREA AND ALL NEARBY QuicKARTS TURNED OFF
DANE TECHNOLOGIES
RADIO OPERATION
TURN KEY TO "ON"
BATTERY LEVEL LIGHTS, FORWARD LIGHT, AND MANUAL MODE LIGHT COME ON.
PUSH MODE BUTTON.
NO STATUS LIGHTS ON THE JUNCTION BOX ARE ON.
QuicKART SWITCHES TO RADIO MODE.
PUSH SLOW BUTTON.
REMOTE SLOW DRIVE COMMAND. BRAKE RELEASE WILL CLICK. TOP SPEED OF 0.7 MPH.
PUSH FAST BUTTON.
REMOTE FAST DRIVE COMMAND. BRAKE RELEASE WILL CLICK. TOP SPEED OF 2.8 MPH.
DANE TECHNOLOGIES Inc.
7105 Northland Terrace
Minneapolis, MN 55428
PHONE : (763) 544-7779
FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART
DWG/PART NO. 970-020
DRN BY: JJH
SCALE NA
SHEET 3 OF 12
DWG DATE 3/1/06

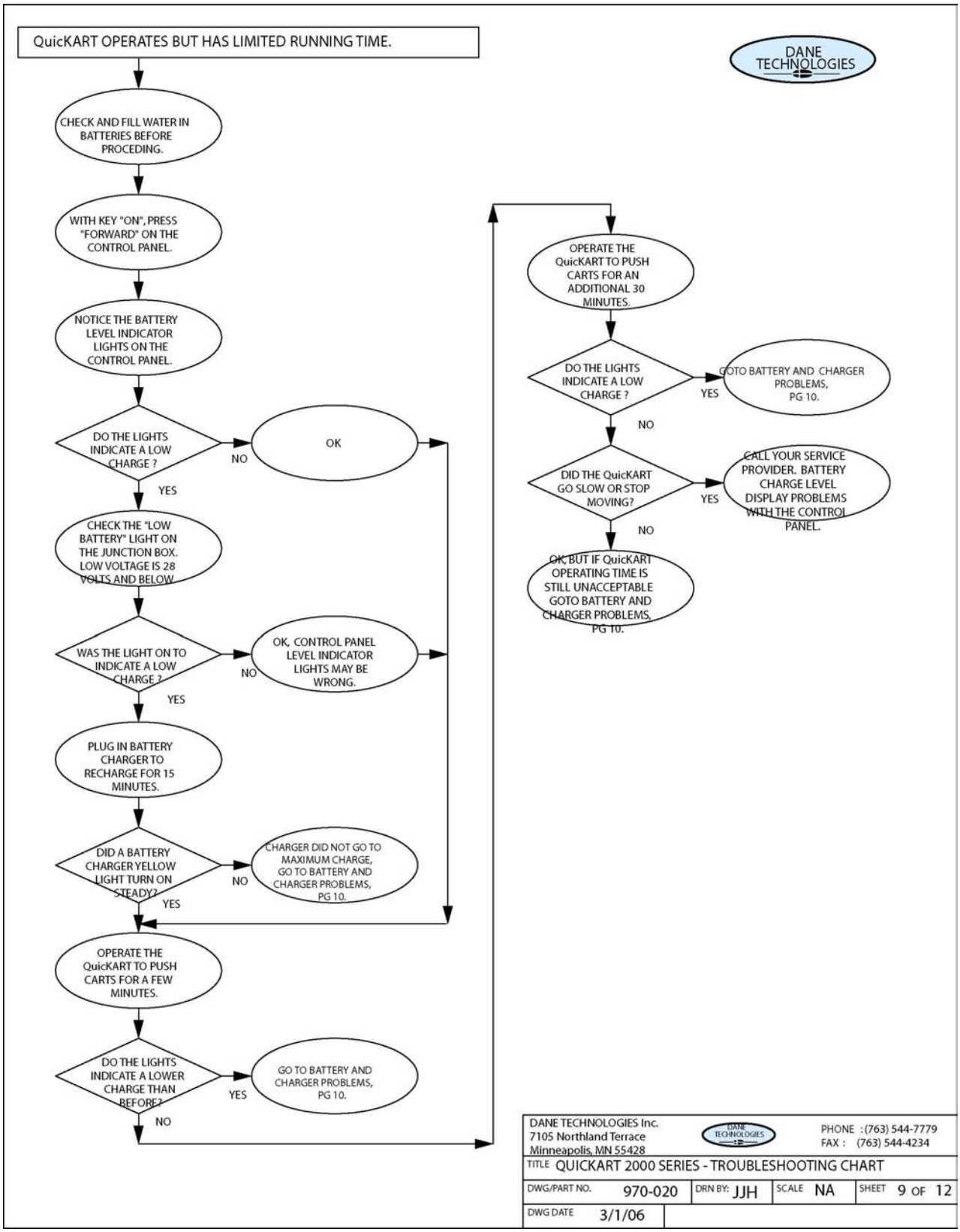

QuicKART DOES NOT OPERATE
CAUTION:
TROUBLE SHOOT WITH THE
QuicKART IN A CLEAR AREA AND ALL
NEARBY QuicKARTS TURNED OFF
DANE TECHNOLOGIES
BE SURE BRAKE LEVER IS PUSHED IN.
TURN KEY "OFF" THEN "ON"
DOES THE HORN SOUND?
YES
CALL YOUR SERVICE PROVIDER. CHECK JUNCTION BOX.
NO
DO CONTROL PANEL LIGHTS FLASH ONCE?
YES
NO
IS EMERGENCY SHUTOFF BUTTON PUSHED IN?
YES
PULL EMERGENCY SHUTOFF BUTTON OUT. (RED BUTTON ONLY)
NO
DO CONTROL PANEL LIGHTS FLASH MORE THAN ONCE?
YES
CALL YOUR SERVICE PROVIDER. CURTIS MOTOR CONTROLLER PROBLEM.
NO
DOES QuicKART OPERATE IN MANUAL?
YES
GO TO QuicKART DOES NOT OPERATE IN RADIO, PG 5.
NO
OPEN COVER, ARE ANY CABLES DISCONNECTED?
YES
TURN KEY "OFF" AND RECONNECT CABLES. TURN "ON".
NO
OPEN COVER, IS CIRCUIT BREAKER BUTTON ON JUNCTION BOX OUT?
YES
PUSH IN CIRCUIT BREAKER TO RESET.
NO
DO CONTROL PANEL LIGHTS SHOW LOW CHARGE?
YES
PLUG IN AC CORD TO RECHARGE BATTERIES.
NO
TURN KEY "OFF", DISCONNECT RED BATTERY CABLE THEN BEACON TOWER CABLE. RECONNECT RED BATTERY CABLE AND TURN KEY "ON".
DOES QuicKART OPERATE IN MANUAL?
YES
GO TO QuicKART DOES NOT OPERATE IN RADIO, PG 5.
NO
IS THE HANDLE BAR BROKEN?
YES
CALL YOUR SERVICE PROVIDER. REPLACE THE HANDLEBAR.
NO
DOES TURNING ON THE KEY CAUSE ANY LIGHTS TO CHANGE?
NO
CALL YOUR SERVICE PROVIDER. CHECK FOR DAMAGED KEY SWITCH.
YES
IS JUNCTION BOX "SUPPLY FAULT" LIGHT ON STEADY?
YES
CALL YOUR SERVICE PROVIDER. CHECK FOR DAMAGED EMERGENCY SHUT-OFF SWITCH.
NO
IS JUNCTION BOX "SUPPLY FAULT" LIGHT FLASHING?
YES
CALL YOUR SERVICE PROVIDER. CHECK FOR DAMAGED CONTROL PANEL.
NO
ON THE JUNCTION BOX ARE THE BEACON BRAKE AND "DRIVE CMD" LIGHTS ON?
YES
CHECK FOR LOOSE CONNECTIONS ON CURTIS CONTROLLER LARGE BLACK CABLE
NO
DOES THE DRIVE COMMAND FLASH 4 TIMES?
YES
CALL YOUR SERVICE PROVIDER. CHECK MICRO SWITCH ON BRAKE
NO
TWIST THE THROTTLE AND LISTEN. ALSO WATCH THE JUNCTION BOX "DRIVE" LIGHT.
DID A CLICK SOUND AND THE "DRIVE" LIGHT TURN ON?
NO
TURN KEY "OFF". RECONNECT BEACON TOWER CABLE. CALL YOUR SERVICE PROVIDER. CHECK THROTTLE POTENTIOMETER.
YES
DID A CLICK SOUND 2 TIMES?
YES
CALL YOUR SERVICE PROVIDER. CHECK BRAKE. SHORT BETWEEN PINS 1 AND 2
NO
DID LIGHTS FLASH ONCE WITH NO MOTION?
YES
CALL YOUR SERVICE PROVIDER. CHECK CONTACTOR COIL. SHOULD BE 120 OHMS.
NO
WITH THE BRAKE PUSHED IN. PUSH THE QuicKART.
NOTE: TRY WITH THROTTLE AND NO THROTTLE.
DID THE QuicKART ROLL SOME DISTANCE?
YES
CALL YOUR SERVICE PROVIDER. CHECK TRANSAXLE OR BRAKE.
NO
CALL YOUR SERVICE PROVIDER. UNABLE TO DETERMINE PROBLEM.
DANE TECHNOLOGIES Inc.
7105 Northland Terrace
Minneapolis, MN 55428
PHONE : (763) 544-7779
FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART
DWG/PART NO. 970-020
DRN BY: JJH
SCALE NA
SHEET 4 OF 12
DWG DATE 3/1/06

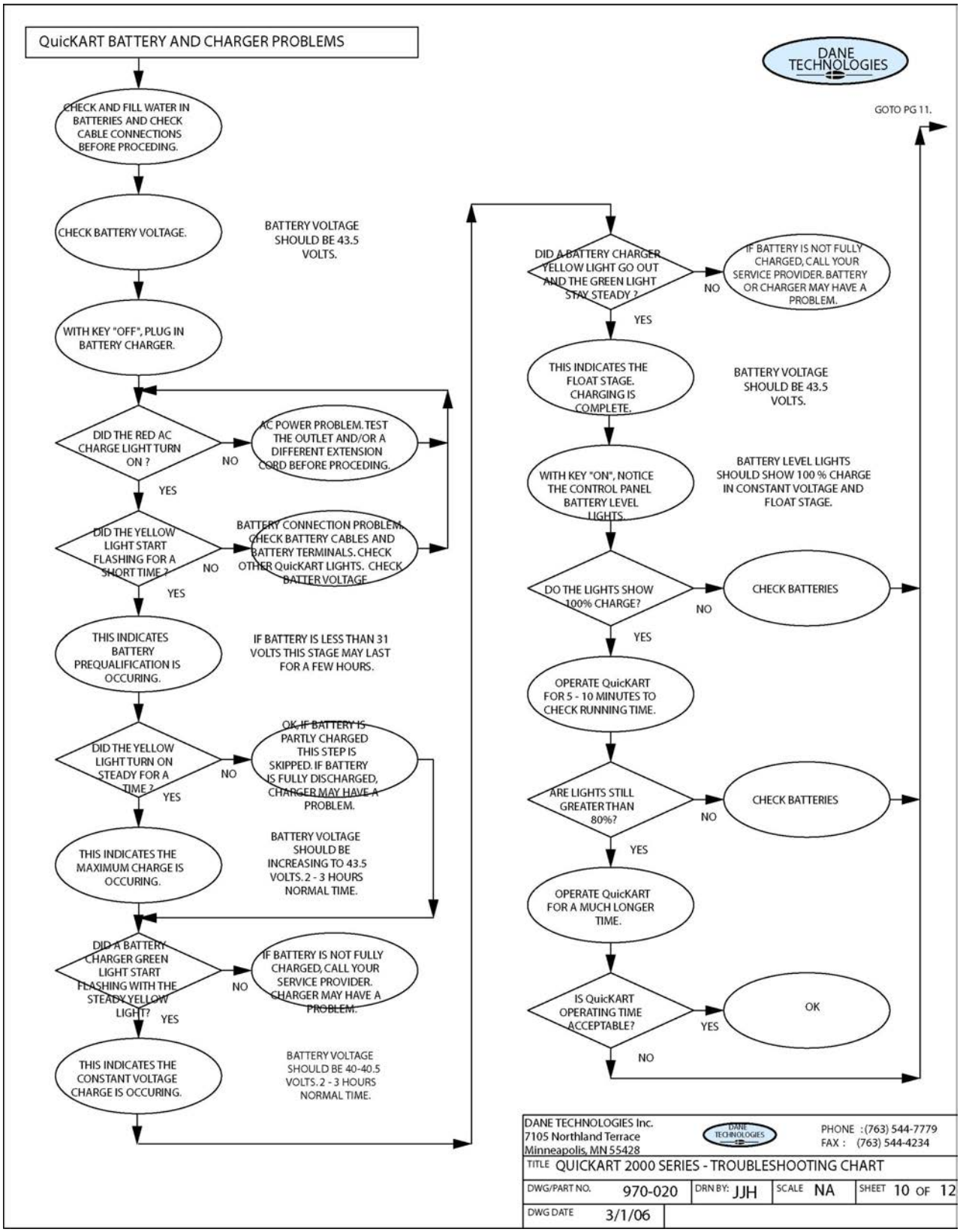

QuicKART DOES NOT OPERATE IN RADIO
DANE TECHNOLOGIES
WITH KEY "ON", PRESS "RADIO" ON THE CONTROL PANEL.
DID THE "MANUAL" LIGHT ON THE PANEL STAY ON ?
YES
GO TO QuicKART DOES NOT OPERATE IN REVERSE, PG 7.
NO
PRESS THE "STOP" BUTTON ON THE REMOTE?
DID THE JUNCTION BOX "BRAKE" LIGHT TURN ON?
YES
OK
NO
HAS BATTERY IN REMOTE BEEN CHANGED RECENTLY?
NO
REPLACE BATTERY IN REMOTE. SEE SECTION 1 OF THE OWNERS MANUAL.
YES
REPROGRAM THE REMOTE TO THE QuicKART. SEE SECTION 1 OF THE OWNERS MANUAL.
DID THE QuicKART HORN SOUND?
YES
NO
FROM PG 6
REMOTE MAY NOT BE WORKING. CAN YOU TRY ANOTHER REMOTE?
1ST
2ND BEACON TROUBLESHOOT
CALL YOUR SERVICE PROVIDER. BEACON TOWER OR JUNCTION BOX HAS A PROBLEM. CHECK FOR BEACON TOWER DAMAGE OR MISSING ANTENNAS.
PUT QuicKART IN MANUAL MODE.
CHECK ALL REMOTE BUTTONS ON JUNCTION BOX FOR STATUS LIGHTS.
REPEAT FOR EACH BUTTON.
DID ANY JUNCTION BOX STATUS LIGHT TURN ON? (EXCEPT HORN)
NO
REMOTE MAY NOT BE WORKING PROPERLY. CAN YOU TRY ANOTHER REMOTE? REPROGRAM NEW REMOTE.
YES
NO
YES
HAVE ALL BUTTONS BEEN CHECKED AND WORKING PROPERLY?
NO
YES
PUT QuicKART IN RADIO MODE.
TURN QuicKART OFF, THEN ON.
FROM PG 12
PUSHING SLOW OR FAST MAKES QUICKART GO IN REVERSE.
YES
CALL YOUR SERVICE PROVIDER. BAD CONTROL PANEL OR BAD GREEN WIRE IN CABLE.
NO
DID SOME FUNCTION LIGHTS COME ON?
YES
PUSHING SLOW OR FAST MAKES CONTROL PANEL JUMP INTO MANUAL? PUSH BRAKE LEVER IN.
1ST
2ND
YES
DID THE JUNCTION BOX LIGHTS TURN ON FOR ALL FUNCTIONS?
NO
CALL YOUR SERVICE PROVIDER. CHECK JUNCTION BOX, TRANSAXLE, BRAKE, OR CONTROLLER.
YES
PUSH BUTTON SLOW/FAST. PUSH QuicKART. DOES IT MOVE?
YES
CALL YOUR SERVICE PROVIDER. CHECK MOTOR BRUSHES.
NO
DANE TECHNOLOGIES Inc.
7105 Northland Terrace
Minneapolis, MN 55428
PHONE : (763) 544-7779
FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART
DWG/PART NO. 970-020
DRN BY: JJH
SCALE NA
SHEET 5 OF 12
DWG DATE 3/1/06


QuicKART DOES NOT SWITCH TO RADIO
WITH KEY "ON", PRESS "RADIO" ON THE CONTROL PANEL.
DID THE "RADIO" LIGHT ON THE CONTROL PANEL TURN ON?
YES
GO TO QuicKART WILL NOT GO INTO RADIO, PG 5.
NO
IS THE JUNCTION BOX "DRIVE COMMAND" LIGHT ON?
NO
CALL YOUR SERVICE PROVIDER. CHECK JUNCTION BOX OR CHECK CONTROL PANEL.
YES
ARE OTHER JUNCTION BOX LIGHTS ON?
NO
CHECK TO SEE THAT MANUAL THROTTLE IS OFF OR CALL YOUR SERVICE PROVIDER. CHECK FOR BROKEN OR DISCONNECTED THROTTLE.
YES
CHECK TO SEE THAT THE REMOTE IS OFF BY REMOVING BATTERIES.
IS THE JUNCTION BOX "DRIVE COMMAND" LIGHT ON?
NO
GOTO PG. 5, QuicKART DOES NOT OPERATE IN RADIO.
YES
TURN KEY "OFF", DISCONNECT RED BATTERY CABLE THEN BEACON TOWER CABLE. RECONNECT RED BATTERY CABLE AND TURN KEY "ON".
IS THE JUNCTION BOX "DRIVE" LIGHT ON?
NO
CALL YOUR SERVICE PROVIDER. REPLACE BEACON TOWER.
YES
GOTO QuicKART DOES NOT OPERATE IN REVERSE, PG 7.
DANE TECHNOLOGIES
QuicKART STROBE LIGHT ISN'T WORKING
TURN KEY "OFF" AND THEN "ON"
IS THE STROBE LIGHT FLASHING?
YES
OK
NO
IS THE EMERGENCY STOP BUTTON PULLED OUT?
NO
PULL OUT EMERGENCY STOP BUTTON.
YES
1ST
REMOVE THE STROBE LIGHT COVER AND REPLACE THE LIGHT BULB.
2ND
CALL YOUR SERVICE PROVIDER. CHECK BEACON.
DANE TECHNOLOGIES Inc.
7105 Northland Terrace
Minneapolis, MN 55428
PHONE :(763) 544-7779
FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART
DWG/PART NO. 970-020
DRN BY: JJH
SCALE NA
SHEET 6 OF 12
DWG DATE 3/1/06

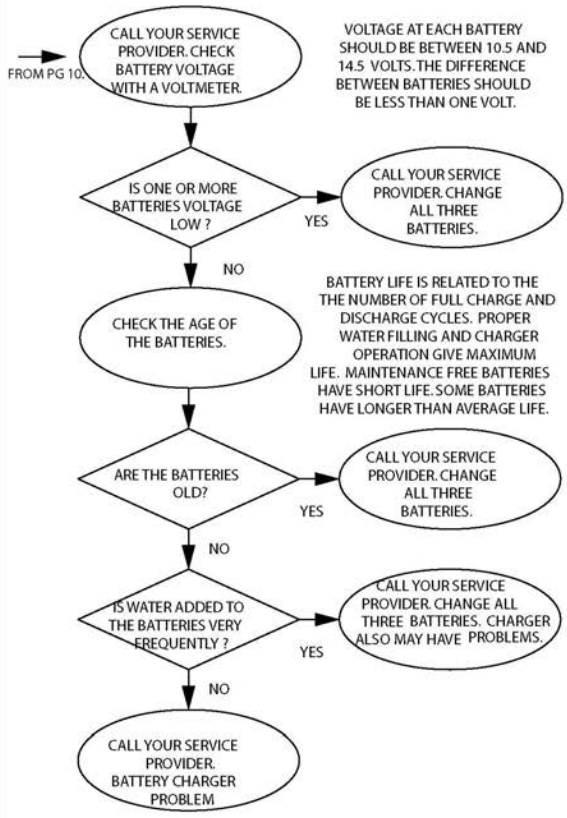

QuicKART DOES NOT OPERATE IN REVERSE
WITH KEY "ON", PRESS "MANUAL" AND "REVERSE" ON THE CONTROL PANEL.
IS THE CONTROL PANEL "MANUAL" LIGHT ON?
NO
PRESS THE CONTROL PANEL "MANUAL/RADIO" SWITCH.
1ST
2ND
YES
DID THE "REVERSE" LIGHT ON THE PANEL TURN ON?
YES
NO
FROM PG 4
IS THE JUNCTION BOX "DRIVE COMMAND" LIGHT ON?
NO
CALL YOUR SERVICE PROVIDER. CHECK CONTROL PANEL OR CHECK JUNCTION BOX.
YES
CHECK TO SEE THAT MANUAL THROTTLE IS OFF OR CALL YOUR SERVICE PROVIDER. CHECK FOR BROKEN OR DISCONNECTED THROTTLE.
IS THE JUNCTION BOX "DRIVE COMMAND" LIGHT ON?
YES
CALL YOUR SERVICE PROVIDER. CHECK CONTROL PANEL OR CHECK JUNCTION BOX.
NO
DID PRESSING "REVERSE" TURN THE LIGHT ON?
NO
CALL YOUR SERVICE PROVIDER. CHECK CONTROL PANEL OR CHECK JUNCTION BOX.
WHEN THE THROTTLE IS TWISTED, DID THE QuicKART MOVE IN REVERSE?
YES
OK
NO
DID THE QuicKART MOVE FORWARD?
YES
IF THE QuicKART HAS RECENTLY HAD REPAIRS, CALL YOUR SERVICE PROVIDER. CHECK AND REVERSE MOTOR WIRES.
NO
DOES THE JUNCTION BOX "DRIVE COMMAND" LIGHT TURN ON?
YES
GOTO QuicKART MOVES INTERMITTANTLY, PG 8.
NO
CALL YOUR SERVICE PROVIDER. CHECK FOR BROKEN THROTTLE.
DANE TECHNOLOGIES
QuicKART MOVES THE WRONG WAY OR MOVES IN REVERSE ONLY
WITH KEY "ON", PRESS "MANUAL" ON THE CONTROL PANEL.
REPEAT FOR "REVERSE".
PRESS "FORWARD (REVERSE)" ON THE CONTROL PANEL.
TWIST THE THROTTLE TO MOVE IN FORWARD (REVERSE).
DID THE QuicKART MOVE FOWARD (REVERSE)?
YES
1ST
2ND
NO
DID THE QuickKART MOVE IN REVERSE FOR FORWARD?
YES
CALL YOUR SERVICE PROVIDER. CHECK CN5-1.
PUT QuicKART IN RADIO MODE AND PRESS THE "RABBIT/FAST (TURTLE/SLOW)" REMOTE BUTTON
REPEAT FOR "TURTLE/SLOW".
DID THE QuicKART MOVE FOWARD FAST (SLOW)?
YES
1ST
2ND
OK
NO
DID THE QuicKART MOVE IN REVERSE?
YES
CALL YOUR SERVICE PROVIDER. CHECK CN5-1.
NO
GOTO QuicKART DOES NOT OPERATE IN RADIO, PG 5.
DANE TECHNOLOGIES Inc.
7105 Northland Terrace
Minneapolis, MN 55428
PHONE :(763) 544-7779
FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART
DWG/PART NO. 970-020
DRN BY: JJH
SCALE NA
SHEET 7 OF 12
DWG DATE 3/1/06


QuicKART MOVES INTERMITTANTLY OR HAS LOW POWER
WITH KEY "ON", PRESS "FORWARD" ON THE CONTROL PANEL.
DID THE "FORWARD" LIGHT ON THE PANEL TURN ON ?
NO
GO TO DOES NOT OPERATE IN REVERSE, PG 7.
YES
TWIST THE THROTTLE TO MOVE IN FORWARD.
DID THE QuicKART MOVE FORWARD?
YES
OK
NO
DOES THE JUNCTION BOX "DRIVE COMMAND" LIGHT TURN ON?
NO
CONTROL PANEL OR JUNCTION BOX PROBLEM
YES
IF YOU PUSH THE MACHINE, DOES IT FINALLY MOVE FORWARD NORMALLY?
NO
CALL YOUR SERVICE PROVIDER. BAD MOTOR OR CONTROLLER
YES
CALL YOUR SERVICE PROVIDER. BAD MOTOR BRUSHES OR CONTROLLER
CAN MORE THAN 20 CARTS BE PUSHED ON A LEVEL SURFACE?
NO
CALL YOUR SERVICE PROVIDER. CHECK BATTERIES, MOTOR, AND BRAKE
YES
OK
QuicKART HORN ISN'T WORKING
TURN KEY "OFF" AND THEN "ON"
CHECK TO SEE IF HORN IS PLUGGED INTO JUNCTION BOX.
NO
PLUG HORN INTO JUNCTION BOX.
YES
DOES PRESSING THE CONTROL PANEL HORN BUTTON TURN ON THE HORN?
YES
OK
NO
WITH A WORKING RADIO SYSTEM. PRESS THE CONTROL PANEL RADIO BUTTON.
DOES PRESSING THE REMOTE HORN BUTTON TURN ON THE HORN?
YES
OK
NO
DOES THE HORN WORK BOTH WAYS?
YES
OK
NO
CALL YOUR SERVICE PROVIDER. JUMPER THE HORN TO TEST OPERATION. SEE APPENDIX. BE CAREFUL OF POLARITY.
DANE TECHNOLOGIES
DANE TECHNOLOGIES Inc.
7105 Northland Terrace
Minneapolis, MN 55428
PHONE : (763) 544-7779
FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART
DWG/PART NO. 970-020
DRN BY: JJH
SCALE NA
SHEET 8 OF 12
DWG DATE 3/1/06

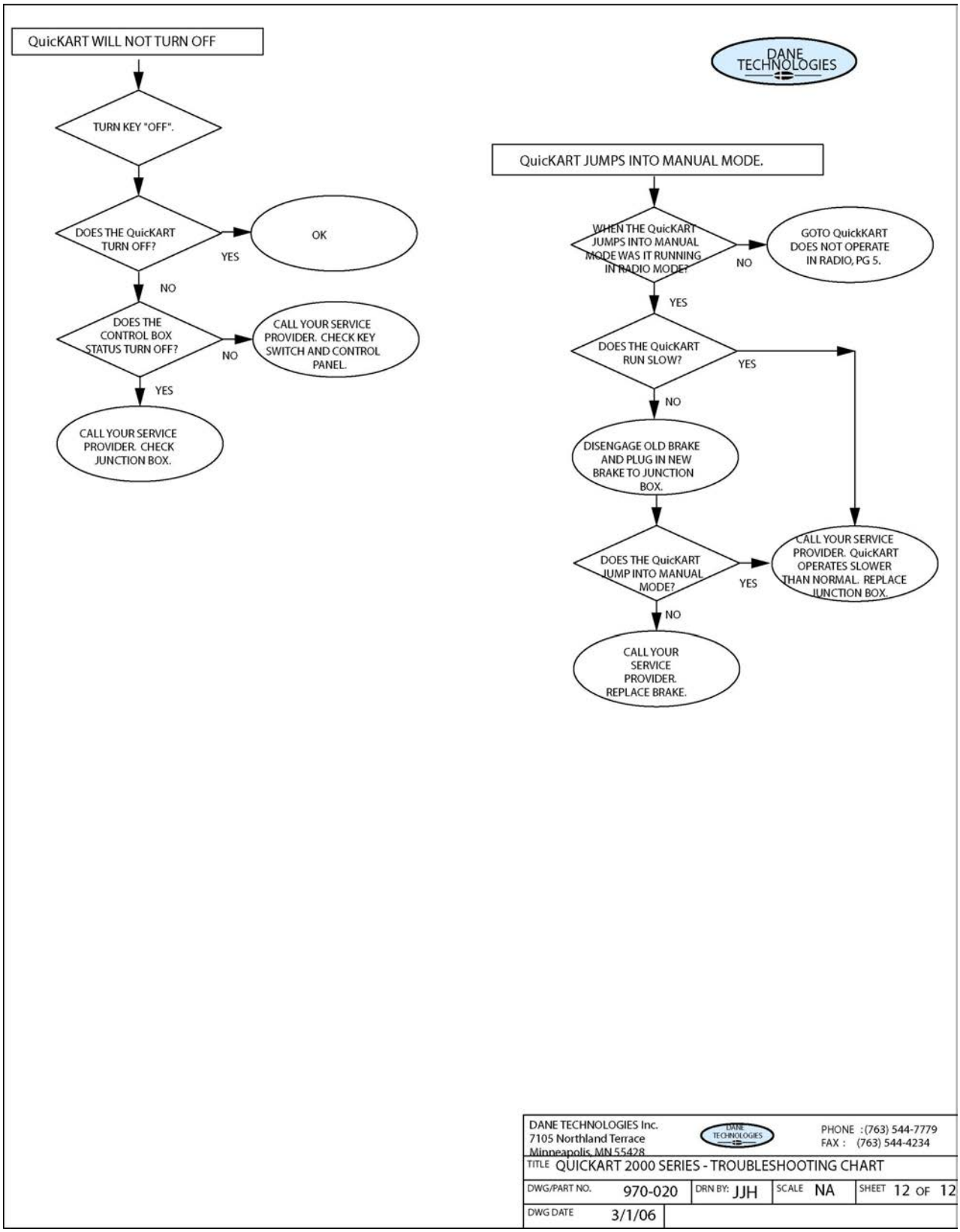

QuicKART OPERATES BUT HAS LIMITED RUNNING TIME.
DANE TECHNOLOGIES
CHECK AND FILL WATER IN BATTERIES BEFORE PROCEDING.
WITH KEY "ON", PRESS "FORWARD" ON THE CONTROL PANEL.
NOTICE THE BATTERY LEVEL INDICATOR LIGHTS ON THE CONTROL PANEL.
DO THE LIGHTS INDICATE A LOW CHARGE ?
NO
OK
YES
CHECK THE "LOW BATTERY" LIGHT ON THE JUNCTION BOX. LOW VOLTAGE IS 28 VOLTS AND BELOW.
WAS THE LIGHT ON TO INDICATE A LOW CHARGE ?
NO
OK, CONTROL PANEL LEVEL INDICATOR LIGHTS MAY BE WRONG.
YES
PLUG IN BATTERY CHARGER TO RECHARGE FOR 15 MINUTES.
DID A BATTERY CHARGER YELLOW LIGHT TURN ON STEADY?
NO
CHARGER DID NOT GO TO MAXIMUM CHARGE, GO TO BATTERY AND CHARGER PROBLEMS, PG 10.
YES
OPERATE THE QuicKART TO PUSH CARTS FOR A FEW MINUTES.
DO THE LIGHTS INDICATE A LOWER CHARGE THAN BEFORE?
YES
GO TO BATTERY AND CHARGER PROBLEMS, PG 10.
NO
OPERATE THE QuicKART TO PUSH CARTS FOR AN ADDITIONAL 30 MINUTES.
DO THE LIGHTS INDICATE A LOW CHARGE ?
YES
GOTO BATTERY AND CHARGER PROBLEMS, PG 10.
NO
DID THE QuicKART GO SLOW OR STOP MOVING?
YES
CALL YOUR SERVICE PROVIDER. BATTERY CHARGE LEVEL DISPLAY PROBLEMS WITH THE CONTROL PANEL.
NO
OK, BUT IF QuicKART OPERATING TIME IS STILL UNACCEPTABLE GOTO BATTERY AND CHARGER PROBLEMS, PG 10.
DANE TECHNOLOGIES Inc.
7105 Northland Terrace
Minneapolis, MN 55428
PHONE :(763) 544-7779
FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART
DWG/PART NO. 970-020
DRN BY: JJH
SCALE NA
SHEET 9 OF 12
DWG DATE 3/1/06


QuicKART BATTERY AND CHARGER PROBLEMS
DANE TECHNOLOGIES
CHECK AND FILL WATER IN BATTERIES AND CHECK CABLE CONNECTIONS BEFORE PROCEDING.
CHECK BATTERY VOLTAGE.
BATTERY VOLTAGE SHOULD BE 43.5 VOLTS.
WITH KEY "OFF", PLUG IN BATTERY CHARGER.
DID THE RED AC CHARGE LIGHT TURN ON ?
NO
AC POWER PROBLEM. TEST THE OUTLET AND/OR A DIFFERENT EXTENSION CORD BEFORE PROCEDING.
YES
DID THE YELLOW LIGHT START FLASHING FOR A SHORT TIME ?
NO
BATTERY CONNECTION PROBLEM. CHECK BATTERY CABLES AND BATTERY TERMINALS. CHECK OTHER QuicKART LIGHTS. CHECK BATTER VOLTAGE.
YES
THIS INDICATES BATTERY PREQUALIFICATION IS OCCURING.
IF BATTERY IS LESS THAN 31 VOLTS THIS STAGE MAY LAST FOR A FEW HOURS.
DID THE YELLOW LIGHT TURN ON STEADY FOR A TIME ?
NO
OK, IF BATTERY IS PARTLY CHARGED THIS STEP IS SKIPPED. IF BATTERY IS FULLY DISCHARGED, CHARGER MAY HAVE A PROBLEM.
YES
THIS INDICATES THE MAXIMUM CHARGE IS OCCURING.
BATTERY VOLTAGE SHOULD BE INCREASING TO 43.5 VOLTS. 2 - 3 HOURS NORMAL TIME.
DID A BATTERY CHARGER GREEN LIGHT START FLASHING WITH THE STEADY YELLOW LIGHT?
NO
IF BATTERY IS NOT FULLY CHARGED, CALL YOUR SERVICE PROVIDER. CHARGER MAY HAVE A PROBLEM.
YES
THIS INDICATES THE CONSTANT VOLTAGE CHARGE IS OCCURING.
BATTERY VOLTAGE SHOULD BE 40-40.5 VOLTS. 2 - 3 HOURS NORMAL TIME.
GOTO PG 11.
DID A BATTERY CHARGER YELLOW LIGHT GO OUT AND THE GREEN LIGHT STAY STEADY ?
NO
IF BATTERY IS NOT FULLY CHARGED, CALL YOUR SERVICE PROVIDER. BATTERY OR CHARGER MAY HAVE A PROBLEM.
YES
THIS INDICATES THE FLOAT STAGE. CHARGING IS COMPLETE.
BATTERY VOLTAGE SHOULD BE 43.5 VOLTS.
WITH KEY "ON", NOTICE THE CONTROL PANEL BATTERY LEVEL LIGHTS.
BATTERY LEVEL LIGHTS SHOULD SHOW 100 % CHARGE IN CONSTANT VOLTAGE AND FLOAT STAGE.
DO THE LIGHTS SHOW 100% CHARGE?
NO
CHECK BATTERIES
YES
OPERATE QuicKART FOR 5 - 10 MINUTES TO CHECK RUNNING TIME.
ARE LIGHTS STILL GREATER THAN 80%?
NO
CHECK BATTERIES
YES
OPERATE QuicKART FOR A MUCH LONGER TIME.
IS QuicKART OPERATING TIME ACCEPTABLE?
YES
OK
NO
DANE TECHNOLOGIES Inc.
7105 Northland Terrace
Minneapolis, MN 55428
PHONE : (763) 544-7779
FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART
DWG/PART NO. 970-020
DRN BY: JJH
SCALE NA
SHEET 10 OF 12
DWG DATE 3/1/06

QuicKART BATTERY AND CHARGER PROBLEMS, CONTINUED


FROM PG 10.
CALL YOUR SERVICE PROVIDER. CHECK BATTERY VOLTAGE WITH A VOLTMETER.
VOLTAGE AT EACH BATTERY SHOULD BE BETWEEN 10.5 AND 14.5 VOLTS. THE DIFFERENCE BETWEEN BATTERIES SHOULD BE LESS THAN ONE VOLT.
IS ONE OR MORE BATTERIES VOLTAGE LOW ?
YES
CALL YOUR SERVICE PROVIDER. CHANGE ALL THREE BATTERIES.
NO
CHECK THE AGE OF THE BATTERIES.
BATTERY LIFE IS RELATED TO THE THE NUMBER OF FULL CHARGE AND DISCHARGE CYCLES. PROPER WATER FILLING AND CHARGER OPERATION GIVE MAXIMUM LIFE. MAINTENANCE FREE BATTERIES HAVE SHORT LIFE. SOME BATTERIES HAVE LONGER THAN AVERAGE LIFE.
ARE THE BATTERIES OLD?
YES
CALL YOUR SERVICE PROVIDER. CHANGE ALL THREE BATTERIES.
NO
IS WATER ADDED TO THE BATTERIES VERY FREQUENTLY ?
YES
CALL YOUR SERVICE PROVIDER. CHANGE ALL THREE BATTERIES. CHARGER ALSO MAY HAVE PROBLEMS.
NO
CALL YOUR SERVICE PROVIDER. BATTERY CHARGER PROBLEM

DANE TECHNOLOGIES Inc. 7105 Northland Terrace Minneapolis, MN 55428				PHONE : (763) 544-7779 FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART				
DWG/PART NO. 970-020	DRN BY: JJH	SCALE NA	SHEET 11 OF 12	
DWG DATE 3/1/06				


QuicKART WILL NOT TURN OFF
TURN KEY "OFF".
DOES THE QuicKART TURN OFF?
YES
OK
NO
DOES THE CONTROL BOX STATUS TURN OFF?
NO
CALL YOUR SERVICE PROVIDER. CHECK KEY SWITCH AND CONTROL PANEL.
YES
CALL YOUR SERVICE PROVIDER. CHECK JUNCTION BOX.
DANE TECHNOLOGIES
QuicKART JUMPS INTO MANUAL MODE.
WHEN THE QuicKART JUMPS INTO MANUAL MODE WAS IT RUNNING IN RADIO MODE?
NO
GOTO QuickKART DOES NOT OPERATE IN RADIO, PG 5.
YES
DOES THE QuicKART RUN SLOW?
YES
NO
DISENGAGE OLD BRAKE AND PLUG IN NEW BRAKE TO JUNCTION BOX.
DOES THE QuicKART JUMP INTO MANUAL MODE?
YES
CALL YOUR SERVICE PROVIDER. QuicKART OPERATES SLOWER THAN NORMAL. REPLACE JUNCTION BOX.
NO
CALL YOUR SERVICE PROVIDER. REPLACE BRAKE.
DANE TECHNOLOGIES Inc.
7105 Northland Terrace
Minneapolis, MN 55428
PHONE :(763) 544-7779
FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART
DWG/PART NO. 970-020
DRN BY: JJH
SCALE NA
SHEET 12 OF 12
DWG DATE 3/1/06

CAUTION, SERVICE PROVIDER INFORMATION ONLY.
INSTRUCTIONS GIVEN ON THIS PAGE MAY DAMAGE COMPONENTS.
DO NOT ATTEMPT ANY ACTION ON THIS PAGE UNLESS YOU ARE QUALIFIED.

DANE TECHNOLOGIES

CHECK FOR DAMAGED KEY SWITCH

-REMOVE THE CONTROL PANEL COVER USING THE TOP FOUR SCREWS, CHECK RESISTANCE WITH A METER BETWEEN TWO POSTS WITH SOLDERED WIRES ON THE BACK OF THE KEY. RESISTANCE SHOULD BE INFINITE WITH KEY "OFF" AND < .1 OHMS WITH KEY "ON".

CHECK FOR DAMAGED EMERGENCY SHUT-OFF SWITCH

-THE BLUE EMERGENCY SHUT-OFF SWITCH WAS USED ON EARLY QUICKARTS AND SPRINGS OUT AFTER BEING PRESSED IN. -THE RED EMERGENCY SHUT-OFF SWITCH IS USED ON LATER QUICKARTS AND STAYS IN AFTER BEING PRESSED IN. THIS SWITCH MUST BE MANUALLY PULLED OUT TO ALLOW THE QUICKART TO TURN ON. -TO TEST THE EMERGENCY SHUT-OFF SWITCH, REMOVE THE CONTROL PANEL COVER USING THE TOP FOUR SCREWS, CHECK RESISTANCE WITH A METER BETWEEN TWO POSTS WITH CONNECTED WIRES ON THE BACK OF THE SWITCH. RESISTANCE SHOULD BE < .1 OHMS WITH EMERGENCY SHUT-OFF SWITCH "OUT" AND INFINITE WITH SWITCH "IN".

CHECK FOR DAMAGED CONTROL PANEL

-WITH KEY OFF, NO LIGHTS SHOULD BE ON. -WITH EMERGENCY SHUT-OFF BUTTON PUSHED IN, REMOVE THE CONTROL PANEL COVER USING THE TOP FOUR SCREWS AND DISCONNECT INTERNAL HARNESS CONNECTORS.

CHECK FOR DAMAGED HORN

-WITH KEY ON, THE HORN SHOULD OPERATE FROM THE CONTROL PANEL OR THE REMOTE.
-IF THE HORN DOES NOT OPERATE, JUMPER THE HORN TO TEST OPERATION.
-UNPLUG THE HORN CABLE CONNECTOR FROM THE JUNCTION BOX.
-USING TWO SHORT WIRES, CONNECT THE RED POSITIVE BATTERY CABLE TO THE EYELET OF THE HORN RED WIRE. THEN CONNECT THE BLACK NEGATIVE BATTERY CABLE TO THE EYELET OF THE HORN BLACK WIRE.
-IF THE HORN DOES NOT SOUND. REPLACE THE HORN.
-IF THE HORN SOUNDS THE PROBLEM IS IN THE CABLE OR JUNCTION BOX.
-USING A VOLT OHM METER, CHECK THE CABLE CONTINUITY FROM THE CONNECTOR PINS TO THE HORN EYELETS.

CHECK FOR DAMAGED BRAKE, SERVICE MANUAL SECTION 3

-IF THE CONTROL PANEL LIGHTS FLASH ONCE WHEN THE MACHINE TRIES TO MOVE. PUSH THE BRAKE ROD IN.
-IF THE CONTROL PANEL LIGHTS STILL FLASH ONCE. VERIFY THE BRAKE ROD IS CONNECTED TO THE BRAKE LEVER AND TEST AGAIN.
-IF THE CONTROL PANEL LIGHTS STILL FLASH ONCE. TURN OFF THE KEY, DISCONNECT THE FOUR WIRE CONNECTOR ON THE JUCTION BOX AND CHECK THE TWO WHITE BRAKE SWITCH WIRES, PINS 3 AND 4, AT THE CONNECTOR FOR RESISTANCE TO EACH OTHER. RESISTANCE SHOULD BE < .1 OHMS WITH BRAKE ROD "IN" AND INFINITE WITH BRAKE ROD "OUT".
IF THE SWITCH DOES NOT OPERATE CORRECTLY, VERIFY BY RECONNECTING THE FOUR PIN CONNECTOR TO THE JUNCTION BOX AND INSERTING A SMALL BARE WIRE INTO THE BACK SIDE OF THE CONNECTOR JUMPERING THE TWO WHITE WIRES TOGETHER. TURN THE KEY ON AND TWIST THE THROTTLE. IF THE QUICKART MOVED AND THE CONTROL PANEL LIGHTS DIDN'T FLASH ONCE, REPLACE THE BRAKE.

- IF THE BRAKE SWITCH TESTS OK, CHECK THE JUNCTION BOX.

-TO CHECK THE BRAKE FOR MECHANICAL OPERATION,
TURN THE KEY OFF. PUSH THE BRAKE ROD IN AND TRY TO MOVE THE QUICKART FORWARD OR REVERSE. THE QUICKART SHOULD NOT ROLL.
PULL THE BRAKE ROD OUT AND TRY TO MOVE THE QUICKART FORWARD OR REVERSE. THE QUICKART SHOULD ROLL. TURN THE KEY ON. THE QUICKART SHOULD TURN ON BUT THE CONTROL PANEL LIGHTS SHOULD FLASH ONCE WHEN THE THROTTLE IS TWISTED AND THE QUICKART SHOULD NOT MOVE. THIS POSITION OF THE BRAKE ROD IS USED FOR MOVING THE QUICKART WHEN IT IS INOPERATIVE.
PUSH THE BRAKE ROD IN. TURN THE KEY ON AND TRY TO MOVE THE QUICKART FORWARD OR REVERSE. THE QUICKART AGAIN SHOULD NOT ROLL. TURN THE KEY ON. THE QUICKART SHOULD TURN ON AND OPERATE NORMALLY WHEN THE THROTTLE IS TWISTED.

-IF THE QUICKART ROLLS WHEN IT SHOULDN'T, GO TO CHECK FOR DAMAGED AXLE.

-THE QK2000 BRAKE COIL RESISTANCE AS MEASURED BETWEEN PINS 1 AND 2 (TWO BLACK WIRES) IN THE CONNECTOR SHOULD BE 63 OHMS. THE RESISTANCE IS 50 OHMS FOR THE QK2500.

DANE TECHNOLOGIES Inc. 7105 Northland Terrace Minneapolis, MN 55428	DANE TECHNOLOGIES			PHONE : (763) 544-7779 FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART				
DWG/PART NO. 970-020	DRN BY: JJH	SCALE NA	SHEET 1 OF 2	
DWG DATE 3/1/06	SERVICE PROVIDER APPENDIX			

CAUTION, SERVICE PROVIDER INFORMATION ONLY.
INSTRUCTIONS GIVEN ON THIS PAGE MAY DAMAGE COMPONENTS.
DO NOT ATTEMPT ANY ACTION ON THIS PAGE UNLESS YOU ARE QUALIFIED.

DANE TECHNOLOGIES

CHECK FOR DAMAGED TRANSAXLE

-CHECK FOR DAMAGED BRAKE BEFORE CHECKING FOR DAMAGED TRANSAXLE.
-IF THE QUICKART ROLLS WHEN IT SHOULDN'T, REMOVE THE BELLY PAN AND REPEAT THE BRAKE ROD "IN" TEST. TURN THE KEY OFF. PUSH THE BRAKE ROD IN AND TRY TO ROTATE ONE WHEEL WHILE HOLDING THE OTHER FIXED. THE WHEEL SHOULD NOT TURN.
IF THE WHEEL TURNS, REMOVE THE BRAKE ROD AND THE PLASTIC COVER OVER THE BRAKE, REMOVE THE 9/64"SCREWS HOLDING THE BRAKE ON THE MOTOR. TEST THE DISCONNECTED BRAKE BY SLIDING THE INTERNAL FIBER DISC SIDE TO SIDE. THE BRAKE ROD "IN" POSITION OF THE LEVER SHOULD HOLD THE DISC FIXED, THE BRAKE ROD OUT POSITION SHOULD ALLOW DISC MOVEMENT. THE EXPOSED SHAFT OF THE MOTOR SHOULD TURN WHEN ROTATING ONE WHEEL WHILE HOLDING THE OTHER FIXED OR TURNING THEM BOTH IN THE SAME DIRECTION. -IF THE MOTOR SHAFT DOES NOT TURN, REMOVE THE THREE 1/2" MOTOR MOUNTING BOLTS ON THE TRANSAXLE SIDE AND REMOVE THE MOTOR. TWIST THE MOTOR OUTPUT SHAFT TO VERIFY MOTOR ROTATION.
THE EXPOSED GEAR OF THE TRANSAXLE SHOULD TURN WHEN ROTATING ONE WHEEL WHILE HOLDING THE OTHER FIXED OR TURNING THEM BOTH IN THE SAME DIRECTION. IF THE TRANSAXLE GEAR DOESNT TURN THE TRANSAXLE MUST BE REPLACED.
-IF THE MOTOR OUTPUT SHAFT GEAR OR THE TRANSAXLE GEAR IS NOT DAMAGED AND THE TRANSAXLE TURNS CORRECTLY, CHECK THE MOTOR ELECTRICALLY.

CHECK FOR DAMAGED MOTOR

- TO CHECK FOR NO MOTION OF THE QUICKART WHEN OTHER TESTS HAVE FAILED. DISCONNECT BOTH MOTOR WIRES TO THE CURTIS CONTROLLER , PUSH "IN" THE BRAKE ROD AND LIFT AT LEAST ONE DRIVE WHEEL OFF THE GROUND. THIS TEST CAN BE DONE WITH THE MOTOR INSTALLED IN THE TRANSAXLE OR WHEN THE MOTOR HAS BEEN REMOVED IF DONE CAREFULLY.
TOUCH A MOTOR WIRE TO EACH OF THE POS AND NEG TERMINALS OF ONE BATTERY . THE MOTOR SHOULD TURN AT A SPEED NOT TOO FAST OR TOO SLOW. IF THE MOTOR SHAFT IS NOT VISIBLE THE WHEELS SHOULD TURN.
IF THE MOTOR DOES NOT TURN SMOOTHLY, REPLACE THE MOTOR.

CHECK FOR BROKEN THROTTLE

-REMOVE THE CONTROL PANEL COVER USING THE TOP FOUR SCREWS AND REMOVE THE COVER AND PANEL. DISCONNECT THE CONNECTOR ON THE THROTTLE AND USE A METER TO CHECK RESISTANCE. PIN 1 IS BLUE, PIN 2 IS BROWN, AND PIN 3 IS BLACK. RESISTANCE FROM PIN 1 TO PIN 3 SHOULD BE ABOUT 5K OHMS. RESISTANCE BETWEEN PIN 2 AND PIN 3 SHOULD START AT O AND GO TO SAME RESISTANCE AS FOUND BETWEEN PIN 1 AND 3 AS THE THROTTLE IS TWISTED. RESISTANCE BETWEEN PIN 1 AND PIN 2 SHOULD START AT 5 K OHMS AND GO TO 0 AS THE THROTTLE IS TWISTED.
-IF THE RESISTANCES DON'T CHECK OUT OR THE VALUES JUMP WILDLY DURING THE TEST, REPLACE THE POTENTIOMETER OR HANDLEBAR ASSEMBLY.
-ZERO TWO TIMES AND THEN SET. SET THE POTENTIOMETER BY TURNING IT COUNTER CLOCKWISE TILL IT STOPS. THEN START THE ADJUSTMENT. REFERENCE SERVICE MANUAL SECTION 4, HANDLE BAR ASSEMBLY.

CHECK FOR DAMAGED JUCTION BOX

-REMOVE JUNCTION BOX. CHECK ALL PINS AND CONNECTORS. LOOK FOR PINS OUT OF POSITION, MISSING OR PUSHED IN.
-FOR ADDITIONAL TESTS, REFER TO QK2000 SERIES SERVICE MANUAL SECTION 3, SERVICE BULLETIN 985-002-- CURTIS JUNCTION BOX TEST VOLTAGES.

CHECK FOR DAMAGED CURTIS CONTROLLER

-WITH THE KEY ON, THE CURTIS MOTOR CONTROL BOX STATUS LIGHT SHOULD BE ON AND NOT FLASHING.
-A FLASHING STATUS LIGHT INDICATES A MOTOR CONTROL BOX PROBLEM. REFER TO QK2000 SERIES SERVICE MANUAL SECTION 3, SERVICE BULLETIN 985-006 -- CURTIS MOTOR CONTROL DIAGNOSTIC LIGHTS.
-THE CONTROL PANEL BATTERY CHARGE LEVEL LIGHTS WILL FLASH THE SAME ERROR CODES AS THE MOTOR CONTROL BOX STATUS LIGHT.
-TO CHECK THE CONTACTOR BY ITSELF, MEASURE THE RESISTANCE BETWEEN THE SMALL TERMINALS. THE RESISTANCES SHOULD BE 120-125 OHMS ON THE 2000 MODEL AND 193 OHMS ON THE 2500 MODEL.

DANE TECHNOLOGIES Inc. 7105 Northland Terrace Minneapolis, MN 55428	DANE TECHNOLOGIES			PHONE : (763) 544-7779 FAX : (763) 544-4234
TITLE QUICKART 2000 SERIES - TROUBLESHOOTING CHART				
DWG/PART NO. 970-020	DRN BY: JJH	SCALE NA	SHEET 2 OF 2	
DWG DATE 3/1/06	SERVICE PROVIDER APPENDIX			

DANE TECHNOLOGIES
Service Bulletins — QK-2000

Table of Contents

QK-2000 System Configuration 60
QK-2000 Curtis Junction Box Test Voltages 68
QK-2000 Curtis Motor Control Diagnostic Lights 70
QK-2000 and QK-2500 Drive Wheel Aluminum Hub 72
QK-2000 Drive Motor Brake Assembly Test 73
QK-2000 Throttle Grip 74
QK-2000 Battery Pack and Battery Charger 76

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QK-2000 System Configuration

Service Bulletin — #985-001

November 1999

The QK-2000 machine is a powerful battery powered machine that uses remote control to push shopping carts from the parking lot back to the store.

1. The QuicKART is driven by an **electric motor** through three (3) 12-volt batteries connected in series (36 volts).
2) There is a single 8-inch **castered wheel** in back of the machine, which swivels when the machine turns. This wheel is of solid rubber construction and rides on journal roller bearings, which should be greased at least once a year.
3) The **drive axle** is one integrated assembly containing three (3) major components: the DIFFERENTIAL AND AXLE HOUSING (output shafts), the MOTOR, and the BRAKE ASSEMBLY. In general any one of these three components can be replaced separately.
4) The **axle output shafts** are one-inch in diameter and are driven by a differential gear box located near the center of the axle housing. The system is sealed with lifetime lubrication.
5) The **drive motor** is rated at 36 volts D.C. and is capable of a peak of approximately 2 horsepower. The motor is rated for continuous duty at 0.972 horsepower. The motor drives the axle shafts with ratio of 30.87:1.
6) A **brake** is located on the end of the motor, held in place with two 8/32 x 2.1 inch long, cap screws. The brake assembly contains three major components:

    a) A micro-switch is mounted on the outside of the circular brake housing which detects the position of the manual release arm. When the machine is in normal operation, the switch is closed. When manual release lever, lower right side of back plate, is pulled out, this switch will open and electronics will shut down, preventing the machine from operating without the braking feature. Note: Pulling this manual release lever will keep the brake assembly from locking the motor, allowing the operator to be able to push the machine manually while the QuicKART is turned off. While pushing the QuicKART with the brake released, the motor burns off generated voltage through occasional braking. This can be avoided by pushing the QuicKART slowly.

    b) The brake is an electro-mechanical design. It consists of an electro-magnet (63 ohms), a moving metal disk plus a fiber brake disk. The fiber disk has a hexagon center which mates with a hexagon shaft on the end of the motor. Two screws hold the brake assembly to the back bell housing of the motor. This arrangement means the braking action is through the differential gear box. With the lever in a counter clockwise rotation, viewed from the end, the brake pad is pressed between a fixed and movable plate in the brake housing. When 36 volts are applied to the brake coil, the movable plate releases the brake pad and allows it to turn with the motor. In the QK-2000, 36 volts is used to release the brake but after a few seconds it drops to approximately 18 volts to reduce battery consumption and heat generation.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

7) **The frame** is of a one-piece welded construction, using 3/16 is steel. The welded assembly is black powder coated. Most of the bolt holes in the frame are tapped so nuts are not required.
8) Attached to the underside of the frame is a "**belly pan**" held in place with two bolts near the center and three bolts at the bottom of the back. This belly pan protects the motor/axle assembly from contamination, driving over curbs or running over objects. The belly pan must be removed if any of the motor/axle parts are to be serviced or replaced.
9) The front **drive wheels** are 12 inches in diameter with four 5/16-18 bolts holding it to an aluminum hub. The hub is clamped and keyed to the axle. These drive wheels are available as either pneumatic or foam-filled. Available tread types include: saw tooth, knobby or snow lugs. Tire chains, for traction in snow, are also offered.
10) The standard batteries are deep cycle, maintenance free, group 27, rated at 180 minutes of reserve capacity.
11) The **beacon post** contains three major components: strobe light, brake light and radio system. It is mounted in a channel on the back of the machine with two bolts. The beacon tower can be folded down, for shipping or storage, by removing the bottom bolt, loosening the top bolt (which also acts as a hinge point). In doing this the cable at the bottom of the beacon post must first be disconnected from the junction box and its end pulled through the hole in the back of the frame on older models. Newer models have long cables that do not have to be disconnected.
12) The **strobe** light remains flashing whenever the machine's key switch is turned "on" unless the emergency stop switch has been pressed. Re-cycling the key will restart the machine. The strobe light will operate when the manual brake release lever is pulled out. The strobe light bulb can be reached by unscrewing the colored lens.
13) The **brake light** comes on whenever the drive motor acts to slow the machine down, by releasing the hand throttle grip or letting up on one of the two remote speed control buttons. The brake light uses a 36-volt bulb or LED light.
14) The **radio** system is one of the more sophisticated aspects of the machine. It deals with 4 separate commands (control functions) of which only one-at-a-time is allowed: Brake, Slow, Fast or Horn.
    a) The **hand-held remote** has a separate button for each of the four functions. When a button is pressed, an encoded 418 or 433 MHz radio signal is sent by the remote and picked up by the receiver. The remote operates on four AA batteries which should have a life of 2 to 3 months under normal conditions. Each hand held remote has a unique built in identification code. To "program" a receiver, the stop and horn button are pressed simultaneously while a small button switch is pressed on the bottom of the beacon post box. Once the receiver is matched to a specific remote, no other remote will cause it to operate. If the remote is changed the receiver must be re-programmed.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

b) The receiver is located inside the beacon post box. It consists of two small printed circuit boards, with the receiver being the smallest, mounted to the larger "mother" board. The receiver is a superhetrodyne using two separate antennas. The electronics of the receiver will "lock" on whichever antenna has the most signal strength. This design is a means of avoiding interference problems and reducing the effects of signals bouncing off buildings and cars. The receiver will work with only one antenna but the dependability will be degraded. The signal from the radio's circuit board is fed directly to the "mother" board through a connector. The "mother" board decodes the signal and energizes one of four output wires, which corresponds to the command being issued by the remote. The radio receiver should be able to operate with the remote at a distance of 100 feet.

15) The **steering handle** is made of heavy gage tubing that is formed, welded and nickel-plated. It contains not only the means for manually operating the machine, but is also fitted with the system's control panel and throttle grip.

a) The **throttle-grip** is located on the right side of the handle and a stationary hand-grip is on the left. A protective bar is welded to the handle to protect the grips from damage should the machine come in contact with a wall or the edge of a doorframe. The throttle grip turns about 90 degrees, in one direction only. Turning the throttle causes a potentiometer to change the voltage on its output wire from zero volts, (machine not moving) to about 5 volts (full speed operation). When the control panel has selected "remote" operation, the throttle grip is electrically disconnected.

b) The **control panel** is the central operating point for the machine. The control panel box is mounted at **the** top of the steering handle with 4 screws. An opening in the bottom of the control panel box matches an opening in the steering handle and is the means for getting a multi-wire cable from the push-button controls to the electronic equipment located under the machine's cover. This box has mounted to it a key switch and emergency stop switch, both of which are "closed" when in operation. The connecting leads to both of these items are plugged into the control panel's printed circuit board. The control panel cover contains a bezel plate, printed circuit board, membrane and associated hardware. The printed circuit board contains three push-button switches that are activated by pressing through the thin sections of the white membrane. These three switches are labeled on the membrane's top surface with the following selections:

1. Manual or Remote operation
2. Forward or Reverse operation
3. Stop

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

There are four corresponding lights on the control panel to let the operator know which selection has been made for manual or remote and forward or reverse. In "remote" operation the machine will only operate in the forward direction.

The control bezel panel also has a series of five lights across the tops, which sense the battery voltage. When all five lights are on, the batteries are fully charged, or nearly so. As the batteries are used over several hours the voltage will drop and the lights will change accordingly. When the light on the extreme left starts flashing it means that the battery capacity is expired and should be put on charge again. It will also flash a motor control error code if present.

16) The **junction box** is located under the body cover, mounted on the vertical plate at the **back**. All electrical connections, from various parts of the machine, junction in this box: Batteries; Charger; Motor control; Beacon post; Throttle; Control panel, Horn; Motor; brake assembly. The Junction box contains a printed circuit board, which takes all the various electrical components and appropriately ties them together for the machine's operation.

17) The **Curtis** compatible **junction box** contains seven (7) indicators on the top side as it is mounted.

a) **Supply fault light**. There are two conditions which will cause the supply fault light to turn on.

   1) When this light remains on (without flashing) it indicates the machine had been turned off by means of pushing on the red emergency button on the control panel. The machine will not function while the light is on. To reset, the key switch is turned off, the button pulled out and the key turned on again. This condition does not require service. (The key switch is the correct way to turn off the machine when it is stored or set aside for periods of time.)
   2) When this light is flashing, it indicates that there is a problem in either the beacon post or the control panel. In a fault condition the "supply fault" light starts flashing immediately when the machine is turned on with the key switch. The control panel lights may remain lighted for 3-second then also shut down, but the fault light will remain flashing as long as the fault condition exists. You can determine if the problem is in the Beacon post by turning off the machine with the key switch, unplugging the cable leading to the beacon post, then turn on the key switch. If the problem is in the beacon post the machine will operate normally but only in the "manual" mode. If the problem is somewhere in the control panel circuitry, the fault light will continue to flash and the panel lights will go off in about 3 seconds.

b) **Remote brake** diagnostic light will come "on" whenever the stop button is pressed on the remote. This assumes that remote is working and programmed properly. The machine can be either in manual or remote mode for this test. Failure of this light to come "on" during this test could be a symptom of either a bad remote or damaged receiver. Test the other two diagnostic lights to determine if it is a total radio system failure or not.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

c) **Slow speed** diagnostic light will come "on" whenever the slow button is pressed on the remote. This assumes that remote is working and programmed properly. The machine can be either in manual or remote mode for this test. Failure of this light to come "on" during this test could be a symptom of either a bad remote or damaged receiver

d) **Fast speed** diagnostic light will come "on" whenever the fast button is pressed on the remote. This assumes that remote is working and programmed properly. The machine can be either in manual or remote mode for this test. Failure of this light to come "on" during this test could be a symptom of either a bad remote or damaged receiver

e) Note: **Possible remote problems**

Battery dead - Does the remote indicator light come on when any button is pushed?
Water intrusion - Bad PCB
Broken wire to battery
Damaged switch.

Possible receiver problems

Antenna missing, one or both
Receiver not programmed to match transmitter
Damaged receiver or motherboard
Wire disconnected

f) **Drive command** diagnostic light will tell you that the Curtis motor control box is getting a signal to cause the machine to move. There are four signals that cause this to be lighted. Note: it takes at least a 0.4-volt signal level to activate the Curtis motor control box. That is the threshold level for these lights.

1) Throttle grip twisted in forward
2) Throttle grip twisted in reverse
3) Low speed remote button pushed (in remote mode)
4) High speed remote button pushed (in remote mode)

If this light comes on in any of the above four conditions, but the machine does not operate, review the mechanical and electrical functions of the motor control box or the motor.

If this light does not come on, review the junction box functions.

g) **Low battery** diagnostic light. Whenever the battery pack (three 12-volt batteries in series) drains down to 27 volts, this light comes "on." It is time for a recharge or to find a reason the charger is not working.

h) **Hour meter** records the length of time the machine drive command is on.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

CLIPLIGHT BATTERY CHARGER OPERATION

Battery Charger, 810-037, supplied with the QK-2000E machine, and the 810-036 supplied with the QK-2000 uses a sophisticated charging algorithm that continually tests the charging process from start to finish. Once the charger's output leads are properly connected to the batteries terminals and the charger is plugged into an AC receptacle, the charger waits 3 seconds before starting its 5-stage charging process. These 5-stages are described in the order in which they take place as follows:

PRE-QUALIFICATION TEST - STAGE ONE

The Yellow " Light Emitting Diode" (L.E.D.) flashes on and off.

The duration of this stage is dependent on the condition of the batteries. If the batteries have been left in a state of discharge for a long period of time (days to months). The terminal voltage of the batteries has decayed to less than 1.75V per cell, then the charger may require up to 3 hours of pre-qualification controlled charging. This is to determine if the batteries will even accept a charge. The charger will not function if the total voltage of the three batteries is less than 18 volts. Between 18 and 24 volts the charger will slowly charge the batteries. During this extended testing stage, the Yellow L.E.D. will flash at a slow rate.

CONSTANT CURRENT CHARGE - STAGE TWO

Once the Pre-Qualification Test completes successfully, the Yellow L.E.D. illuminates continuously indicating that the charger is charging the batteries at the full rated output of 16 amperes. This stage ends when the batteries state of charge is at approximately 50-70%. The voltage during this period will be about 41 volts.

CONSTANT VOLTAGE CHARGE - STAGE THREE

The Green L.E.D. flashes on and off and the Yellow L.E.D. flashes fast.
This stage is also referred to as the Absorption Charge or Equalization Charge, since the individual cells inside the batteries are forced to become "equalized" in charge. This stage is exited when the state of charge of the battery has approached near, or is at 100% charge. The voltage will peak at about 43.5 volts when the charger disconnects.

FLOAT CHARGE—STAGE FOUR

This final stage is signaled with the Green "Charged " L.E.D. on. The Trickle Charge will begin when the battery voltage slowly decays to about 40 to 40.5 volts. The charger will now deliver about 300MA which will maintain the charge. If an excessive load is at any time applied and the Terminal Voltage has been forced below a preset level, the charger will reinitiate a charge cycle starting with the Constant Current Stage. In this standby "Float" state the charger can be left connected indefinitely (limited only by the practical service life of the battery), until disconnected.

RECYCLE CHARGE STAGE –FIVE

After completion of the first four stages, the charger will sit in Float Mode. If the charger is left connected to a battery for many weeks/months to maintain the batteries at full charge, the charger will automatically reinitiate a charge cycle routine that starts at the Pre-Qualification Stage, once every 28 days.

This charger cannot repair the damage done to batteries by someone else's charger.

Detection Fault

The Red L.E.D. illuminates continuously if the charger has not detected the connection of a battery of proper polarity and voltage on it's output leads. Once connected, a waiting period of about 3 seconds elapses before the charger recognizes the battery.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

Glossary of Terms

Drive axle--Front axle including the motor and brake assembly.

Junction box--Electrical box mounted on the top inside of machine's back panel.

Motor control box--Electronic speed control mounted on the lower inside of the machine's back panel.

Beacon tower--A metal post at the back of the machine, which contains a strobe light, brake light and radio receiver system.

Handle--The nickel-plated handle at the back of the machine used to steer when operating the machine manually.

Control panel--The black metal box mounted on the handle. Contains mode switches and battery voltage indicator lights as well as the key switch and emergency switch.

Swivel wheel--The 8 inch tire at the rear of the machine which will swivel when the machine is turned off a straight path.

Strobe light--The light on top of the beacon post. Flashes about once each second when the machine is turned on and the E-Shut off not pushed in.

Brake light--The brake light goes on whenever the back EMF of the motor is used to slow down the machine.

Cart coupler--The forks that grip the shopping cart.

Cover--The fiberglass body that protects the components inside the machine. It hinges from the front of the machine.

Throttle grip--Located on the right side of the steering handle. In manual control it is twisted to give the required speed, when walking behind the machine, in forward or reverse.

Hand grip--The rubber grip on the left side of the steering handle.

Brake release--A lever that releases the brake on the end of the motor by hand. This lever has a black knob, which is on the lower right of the back panel. When it is pushed "in" it is in normal operating position. Pulled "out" will turn off all the electronic controls and release the brake so it can be moved by hand.

Hinge--Allows the body to be opened for viewing the insides of the machine. This hinge is made of stainless steel so it will not rust.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QK-2000 Curtis Junction Box Test Voltages

Service Bulletin — #985-002

November 1999

The junction box, part number 100-060, used in conjunction with the Curtis motor control, is used as standard equipment on all QK-2000 machines with serial numbers from 119 and higher.

Plugs are left in their sockets and the machine is turned "on" for these tests. Use a thin probe on the voltmeter to make connections to the pins from the outside of the connector. The voltage readings are from the Neg.(-) side of the battery to points, listed below, on side of junction box.

3-cir. Plug (CN-4) to hand grip throttle control

1 (blue)	About +5volts
2 (brown)	Changes from 0 to +5 volts with the hand throttle grip twisted
3 (black)	Zero voltage (ground)

12-cir plug (CN-5) to control panel on steering handle

1 (green)	+12 volts when forward direction is selected, 0 volts in reverse. (Note: pin 1 and pin 3 should never be 0 volts at the same time.)
2 (black)	0 volts.
3 (white)	+12 volts when manual mode is selected, 0 volts in remote mode. (Note: pin 1 and pin 2 should never be 0 volts at the same time.)
4 (yellow)	+12 volts. When horn is pressed it drops to 0 volts.
5 (brown)	High impedence line, not easily measurable. Ignore.
6 (red)	+12 volts whenever key switch is "on" and 0 volts with key switch is "off."
7 (blue)	+36 volts whenever key switch is "on" and 0 volts with key switch off.
8 (blue)	+36 volts all the time.
9 (orange)	Ignore.
10 (gray)	0 volts normal, goes to 12 volt when emergency stop is pressed in.
11 (none)	No connection
12 (violet)	+9 volts all the time

REV: 8/21/03

9-cir plug (CN-3) to beacon post

1 (yellow)	+12 volts when remote is selected, 0 volts when horn button is pressed on remote.
2 (brown)	+12 volts when machine is stopped, 0 volts when slow speed is activated by remote.
3 (green)	+12 volts when machine is stopped, 0 volts when fast speed is activated by remote.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

4 (white) +12 volts stopped. When the brake is activated, by remote, it drops to 0 volts.
5 (red) +12 volts whenever key switch is on.
6 (black) ground, 0 volts.
7 (blue) ground, 0 volts.
8 (violet) +36 volts, to beacon light, whenever key switch is on.
9 (orange) 1 volt, goes to 36 volts whenever brake light comes on.

15-cir plug (CN-2) to curtis motor control and contactor plate assembly

1 (red) "B+" 36 volts when key switch is on.
2 (none) *Not used.*
3 (brown) Forward, 0 volts, reverse 36 volts.
4 (orange) 36 volts when key switch is on.
5 (yellow) Manual operation: 0 volts, Remote operation:36 volts (voltage drops to zero when in remote mode and "stop" button is pressed on the remote-control.)
6 (none) *Not used.*
7 (green) 36 volts with key switch on, 0 volts with key switch off.
8 (none) *Not used*
9 (blue) 0 to 5 volts when handle bar throttle control is operated over its range while in manual mode
10 (none) No connection
11 (none) No connection
12 (violet) 1 volt, goes to 36 volts whenever brake light comes on
13 (gray) 5 volts all the time except when brake release lever is pulled out then it drops to 0 volts
14 (white) Brake voltage. 28 volts when machine first starts to move, drops to 16 volts about 1 second after machine remains in motion.
15 (none) *Not used.*

4-cir plug (CN-1) to Motor brake release coil and switch.

QK 2000
1 (black) connected to CN-2, pin 1, same readings (brake coil).
2 (black) connected to CN-2, pin 14, same readings (brake coil).
3 (white) 0 volts (ground).
4 (white) 0 volts with brake lever in (normal) 12 volts with lever pulled out.

QK 2500
1 (brown) connected to CN-2, pin 1, same readings (brake coil).
2 (blue) connected to CN-2, pin 14, same readings (brake coil).
3 (white) 0 volts (ground).
4 (black) 0 volts with brake lever in (normal) 12 volts with lever pulled out.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QK-2000 Curtis Motor Control Diagnostic Lights

Service Bulletin — #985-006

May 1999 rev: 7/16/03

The QK2000 series machines with a 1237-3402 Curtis motor control box have a fault light as standard equipment. At the left side of the Curtis motor controller's label is a 3/16-inch window with the word "STATUS" written over it. This window contains a light, which can be used to help diagnose a problem if a machine fails to operate. The flashing will be in the form of a code with "dots" and "spaces" to identify the fault. The "■" shown below is a short flash of the fault light, the "--" is a space. The fault code will be repeated until the fault is corrected or the machine is shut down. These fault codes are common for the 1227 controller on the QK1000/PP1000 , 1237 controller on the PP3000, and 1235 controller on the PP3100 and PP3150.

■--■ Output fault/ Over current fault (*hardware failsafe 2 / 4*)

1) Short in motor or in motor wiring
2) Controller failure

■--■■ EEPROM fault (*hardware failsafe 1*)

1) EEPROM failure or fault

Main contactor fault (*hardware failsafe 3*)

1) Main contactor welded
2) Main contactor driver fault
3) Main contactor coil fault

Precharge fault

1) Internal controller fault
2) Low battery voltage

Motor voltage fault (*HW failsafe*)

1) Motor voltage does not match throttle request
2) M1 or M2 Output shorted to B- or B+.
3) Internal motor short.
4) Controller failure

■--■■■ Not Used

■--■■■■ Not Used

■■--■ SRO fault *(Static Return to Off)*

1) Improper sequencing of KSI,Brake,Direction inputs.
2) Wrong SRO Type selected
3) Direction switch circuit open.

■■--■■ HPD fault *(High Pedal Disconnect)*

1) Improper sequencing of KSI, brake, throttle inputs
2) Misadjusted throttle pot

■■--■■■ HPD fault present >5 seconds *(PROC/ Wiring Fault)*

1) Maladjusted throttle
2) Broken throttle pot
3) Broken throttle mechanism

■■--■■■■ Speed Limit Pot Fault *(SPD LIMIT POT FAULT)*

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

1) Speed limit pot wire broken
2) Broken speed limit pot

□□□--□ Emergency reverse wiring fault *(BB Wiring Check)*

1) BB wire open (BB = Belly Button switch or the Emergency Shut-OFF switch on all models except the PP3000/PP3100/PP3150) (The switch is called the Emergency Reverse switch on the PP3000/PP3100/PP3150)
2) BB check wire open

□□□--□□ EM Brake driver fault

1) Electromagnetic brake coil open
2) Electromagnetic brake wiring open

□□□--□□□ Throttle fault *(Throttle fault 1)*

1) Throttle input wire open
2) Throttle input wire shorted to ground or B+
3) Throttle pot defective
4) Wrong throttle type selected

□□□--□□□□ Not Used

□□□□--□ Low battery voltage

1) Battery voltage below 21 volt cutoff level
2) Corroded or loose battery terminal
3) Loose controller terminal

□□□□--□□ Overvoltage

1) Battery voltage above 48 volt cutoff
2) Vehicle operating with charger attached.

□□□□--□□□ Over/under temperature cutback, *(Thermal* cutback)

1) Temperature more than 95^{o} C, or less than – 25^{o} C
2) Excessive load on vehicle
3) Improper mounting of controller
4) Operation in extreme environment

□□□□--□□□□ Not Used

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QK-2000 and QK-2500 Drive Wheel Aluminum Hub

Service Bulletin — #985-007

May 1999

There are two aluminum hubs that clamp on the ends of the two axle shafts, which drive the wheels that propel the QK-2000 and the QK-2500 machine. These hubs are the same for both sides of the machine. The drive axle shafts are one inch in diameter (1") and the hub is held on with a 1/4 square key plus the clamping action of a side bolt/nut which closes a slot in the depth of the hub.

If the axle shafts spin in the hub's center hole without moving the machine, the ¼ square key needs to be replaced. This key is a standard hardware store item and has a length of one-inch.

When replacing the Key use the following procedure:

1. Lift machine off the ground using the same procedure as you would when changing a rear tire.

2. Remove the four lug nuts and pull the wheel off the four studs in the offending hub.

3. Loosen the clamping bolt so the hub will be loose on the shaft.

4. Align both 1/4-inch key slots. (Half is in the in hub and the other is in the axle shaft).

5. To assure the key will not become loose again, give it an almost imperceptible bend by holding it between two crescent wrenches and apply a small bending force.

6. With a small hammer, tap the key into the 1/4" square keyway opening.

7. Clamp the hub onto the shaft with the bolt.

If center hole in the aluminum hub is damaged, it must be replaced. If one or more of the 3/8-24 studs are broken or the threads damaged, it is easiest to replace the entire hub. However, a stud can be replaced, if necessary, by first removing the bad stud and pressing in a new one. A hammer can be used for this operation but must have solid support to drive in the new stud.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QK-2000 Drive Motor Brake Assembly Test

Service Bulletin — #985-008

May 1999

There are a pair of white and black wires that connect to the electrical brake assemble which is mounted to the back side of the drive motor. These four wires are terminated with a four-pin plug and are inserted into a matching receptacle on the junction box.

The two black wires attach to the magnetic brake release coil and the two white wires are connected to a micro-switch, which tells the electronics if the brake release lever is pulled.

Testing either the magnetic brake coil or the micro-switch is as follows:

Pull out the four-pin plug from the junction box. The resistance between pins 1 and 2 should measure about 63 ohms. If the resistance is well above this value (basically no continuity) or very low (a few ohms) the coil has been damaged.

The brake is released when 36 volts are applied across this coil. Once the brake has been released the 36 volts is dropped to about 20 volts which is more than enough voltage to keep the brake coil functional yet not draw as much current. This brake release, or engagement, can be heard as a clicking sound when the throttle is turned on or off. To measure the voltage across the coil, lift the QK-2000 off of the drive wheels and measure DC voltage across pins 1 & 2 with all plugs connected.

The two white wires are connected to a small micro-switch mounted on the motor's brake assembly. It detects the position of the manual brake release lever. This lever is a mechanical brake release, which allows the machine to be pushed manually. The machine will not function electrically if the lever is pulled out. Normal operation requires this lever to be pushed "in". The white wires will show continuity if the switch is closed (normal operation) and open if the lever is pulled "out."

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QK-2000 Throttle Grip

Service Bulletin — #985-009

July, 1999

The right grip, on the steering handle, serves also as the throttle for the QK-2000, allowing the speed of the machine to be controlled during **manual** operation. The throttle has no function while the machine is in the **remote** mode.

The throttle grip controls the speed of the machine by providing a variable voltage to the Curtis motor control box fed through the Junction box at CN-4 connector. (See Service Bulletin 985-002). The three wires to the throttle grip have the following function.

Black = ground
Blue = 5 volts
Brown = 0- 5 volts (depending on throttle position).

The throttle grip fits over the handle bar. The bar should be wiped clean before inserting a replacement throttle grip. The wire cable from the throttle grip is fed through the small hole on the control panel box and the grip is butted up against this box and the two clamping screws are tightened. After installing a throttle grip, turn it to the full on position, several times, to assure it is not sticking.

Inside the box are three wires which match the colors of the throttle grip. Attach each of these wires as shown in the attached drawing.

To test a throttle grip when it is not connected to the machine, in its "off" position, use an ohmmeter between the wires as shown below:

Brown to Black 0 ohms to 5,000 ohms
Brown to Blue 5,000 ohms to 0 ohms
Blue to Black 5,000 ohms

By twisting the throttle grip, when disconnected from the machine, the following change in resistance will be noted:

Blue to black will remain at 5,000 ohms
Brown to black will go from zero ohms to about 5,000 ohms
Blue to brown will go from 5,000 ohms to zero ohms

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

By twisting the throttle grip, when the machine is tuned on (manual mode), the following voltages will be measured:

Black to blue	5 volts, will not change with throttle position
Brown to blue	5 volts, will decrease to zero volts as the throttle is twisted fully
Black to brown	zero volts, will increase to 5 volts as the throttle is twisted fully.

In addition to these tests, it will be noted that there are six diagnostic lights on the topside of the Junction Box, inside the machine, mounted against the back frame plate. The fifth light, from the left side, is called the "Drive Command." As the throttle grip is twisted the voltage between the black and brown wire will start to increase. When the brown wire is about 0.40 volts, this light will turn on, inducting the throttle is sending its proper command. It does not, however, indicate if the throttle is working properly over its entire range of travel.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QK-2000 Battery Pack and Battery Charger

Service Bulletin — #985-010

July 1999

When the batteries fail to charge, check the following items:

1) The water/acid level has fallen to a level which may have permanently damaged the batteries.

   Note: As of January 1, 1999, all units are shipped with Delco Maintenance-Free, M27A batteries. Before January 1999, units were shipped with Trojan deep cycle, model 30 XHS batteries that require water level maintenance. At the end of the useful life of the Trojan batteries, the unit can be fitted with the Delco maintenance–free batteries if the customer prefers this option.

2) The machine's retractable cord is plugged into an outlet that is not active.

   Note: Test this condition by plugging something into the outlet that can easily determine if the receptacle is alive. Generally a dead output receptacle can be traced to a blown fuse or turned-off switch

3) There is a problem with one of the connectors or a damaged cord de-reeler (before sn 1603).

   Note: The cord de-reeler can be tested by unplugging the battery charger's cord, from the de-reelers, and plugging the charger directly into an electrical outlet. If the battery charger starts to work the de-reeler is defective. If the charger does not work, check the connectors.

   The QK-2000 charging circuit starts with the output cord from the charger, 50-amp with a gray housing. This plugs into the same matching gray connector plug on the side of the junction box. The red 50-amp connector plug goes to the three batteries and it is tied directly in parallel with the gray connector plug. A meter test at both the gray and red connector should show 36 volts nominal if the batteries are charged. (Use thin meter probes at the back of the connector to make this test. Do not disconnect the 50 Amp plugs for this test).

4) The battery voltage has fallen to 24 volts or less (before sn 656).

   This charger has a built-in safety feature, which prevents it from being used with common 12-volt automobile batteries. The charger will not turn itself "on" if the voltage at the output cable connector is less than 24 volts. Therefore, if the three batteries are drained to a total series voltage of 24 or less volts, the charger will not become active. Generally the batteries used on the QK-2000 should yield at least 30 volts in a discharged condition. If only 24 volts is shown on the meter, it is likely they are damaged, maybe permanently, or will have a much-shortened life.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

It is possible to "fool" the battery charger by jumping the machine's 36 volt battery pack with another 36 volt source such as used in a floor scrubber. Once the charger sees more than 24 volts it will turn "on" and should remain so after the jumper cable has been remove. If it does not remain on after the jumper source is removed, likely the batteries are beyond their useful life. Use extreme caution if using this method to recharge batteries.

5) The battery charger is defective.

Check fuses and replace if necessary. If fuses fail again, the fault lies within the system.

Special notes on the Charger (before sn 656): When the charger cord is first plugged into an electrical outlet, there will be a delay of about one or two seconds before the charger turns "on" and the meter shows a current reading. Once the charger is "on" it will remain charging until there is no voltage increase across the battery terminals. The change (increase) in voltage must be at least 15 mv in a 40 minute time period in order for the charger to remain on. If the charger does not read at least a 15 mv increase (battery is then fully charged), it will turn off automatically in about 40 minutes. If the charger has turned itself "off" automatically, unplugging it and then re-plugging it back into the receptacle will restart the charging cycle. It will therefore remain "on" for at least another 40 minutes. A fully charged battery pack could read as high as 44 volts for a period of time after charging.

DANE TECHNOLOGIES
QuicKART 2000 and QuicKART 2500
EXPLODED VIEW DIAGRAM

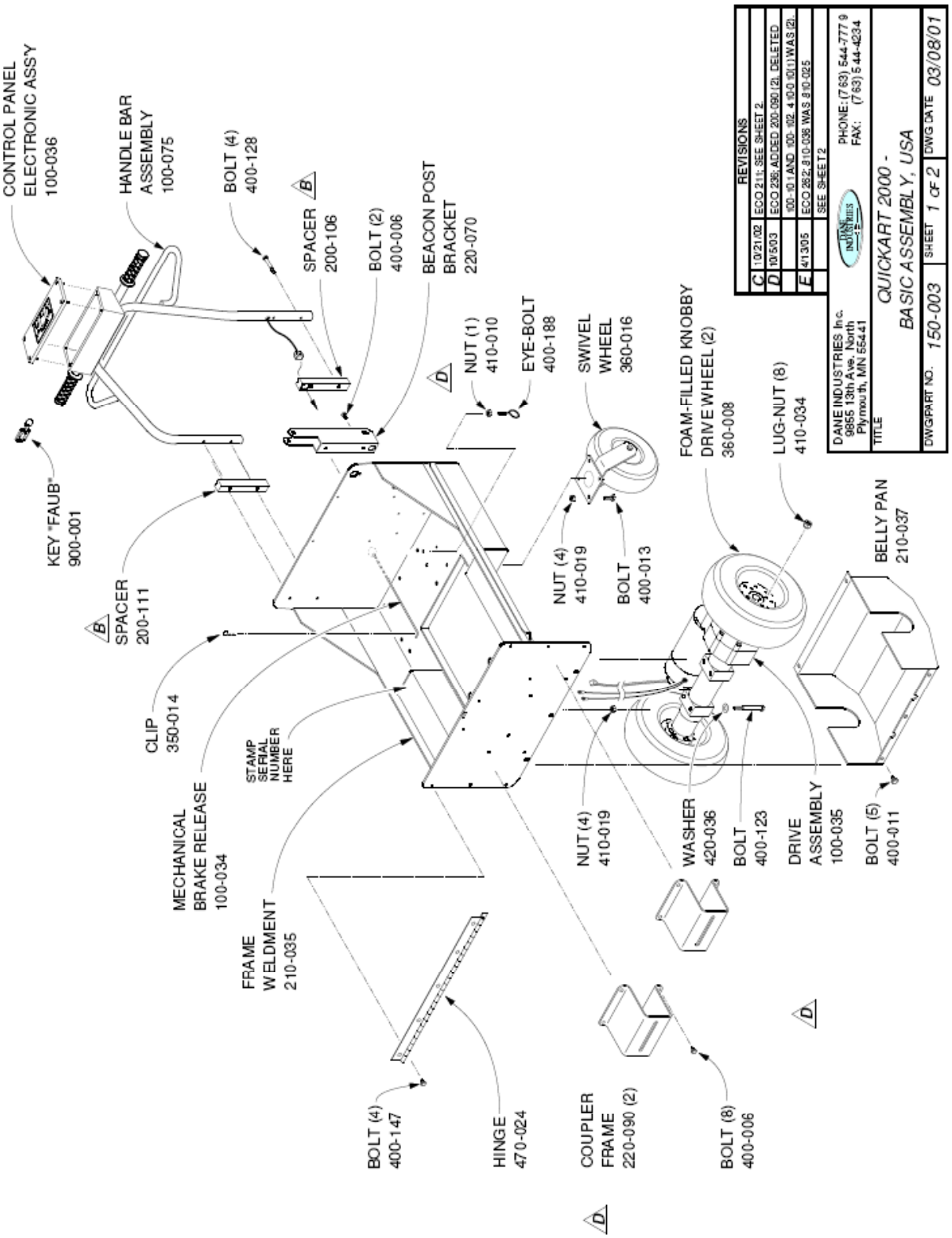
Table of Contents

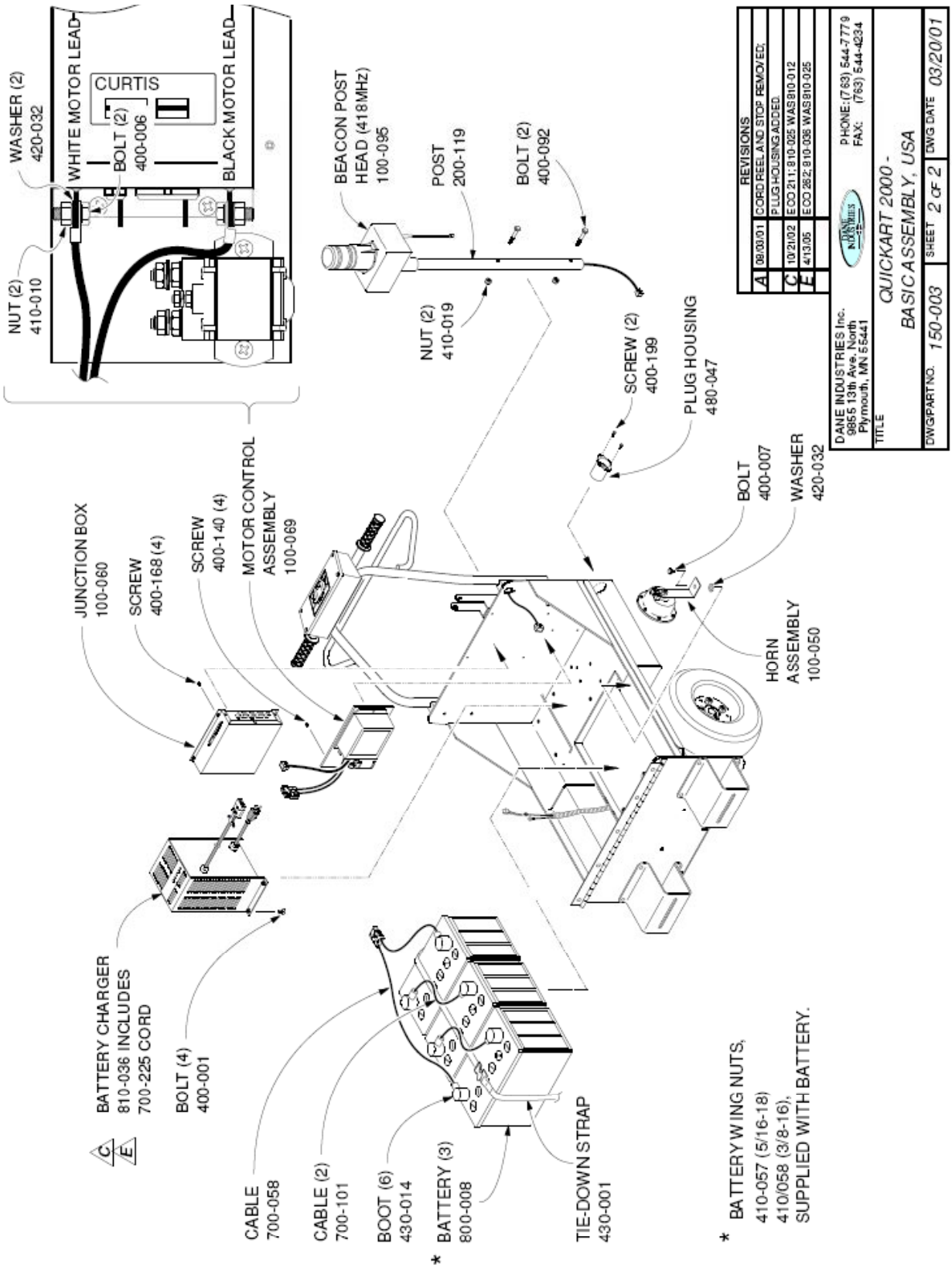
150-003 QuicKART 2000 - BASIC ASSEMBLY, USA 79
150-005 QuicKART 2000 - BASIC ASSEMBLY, EUROPE - 433 MHz 81
150-012 QuicKART 2500 - BASIC ASSEMBLY, 16" TIRE 83
150-016 QuicKART 2000 - BASIC ASSEMBLY, UK - 433 MHz 86
150-017 QuicKART 2500 - 433 MHZ - CE 88
150-036 QuicKART 2000 - BASIC CHASSIS, WALMART 89
100-050 HORN ASSEMBLY 91
100-069 QuicKART 2000 - MOTOR CONTROLLER/CONTACTOR ASSY 92
100-246 QuicKART 2500 - MOTOR CONTROLLER/CONTACTOR ASSY 93
100-075 QuicKART 2000 - HANDLEBAR ASSEMBLY 94
100-095 BEACON POST ASSEMBLY - QuicKART 2000 96
100-096 BEACON POST ASSEMBLY - QuicKART 2000 (EUROPE) 97
100-248 QuicKART 2000 - BREAKAWAY BEACON 98
100-166 QuicKART 2500 - TRANSAXLE ASSEMBLY 99
100-245 QuicKART 2000 – TRANSAXLE & 4-POLE MOTOR 100
100-034 QuicKART 2000 – BRAKE ROD ASSEMBLY 101
100-047 QuicKART 2500 – BRAKE ROD ASSEMBLY 102
680-013 QuicKART WIRING DIAGRAM 103
680-027 QuicKART 2500 OVERALL WIRING DIAGRAM 104
810-036 QuicKART, US CHARGER AND CORD 105
810-037 QuicKART EU CHARGER AND CORD 106
110-066 CART RESTRAINT - ASSEMBLY 107

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

970-011 Rev. 3/1/06

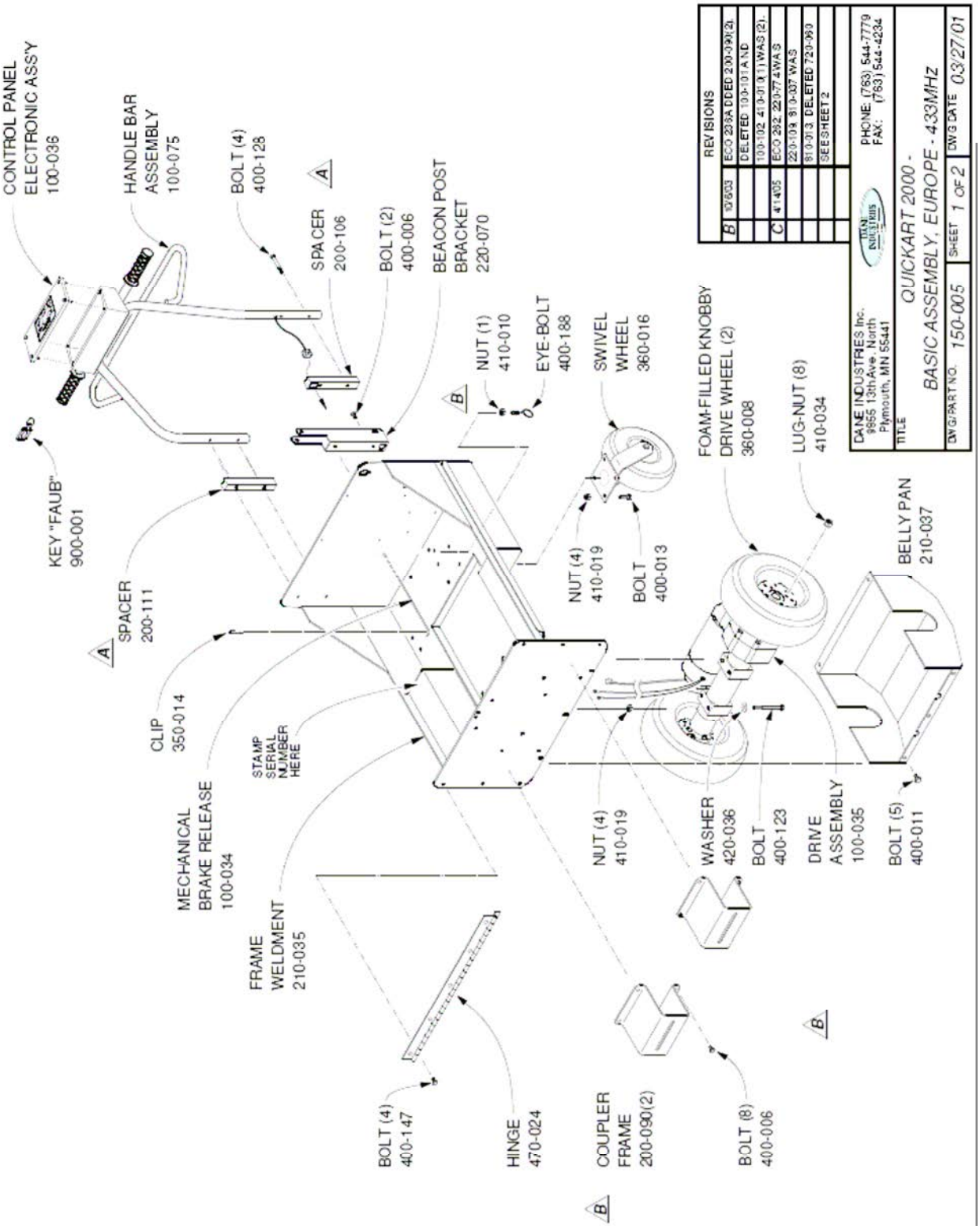
150-003 QuicKART 2000 - BASIC ASSEMBLY, USA

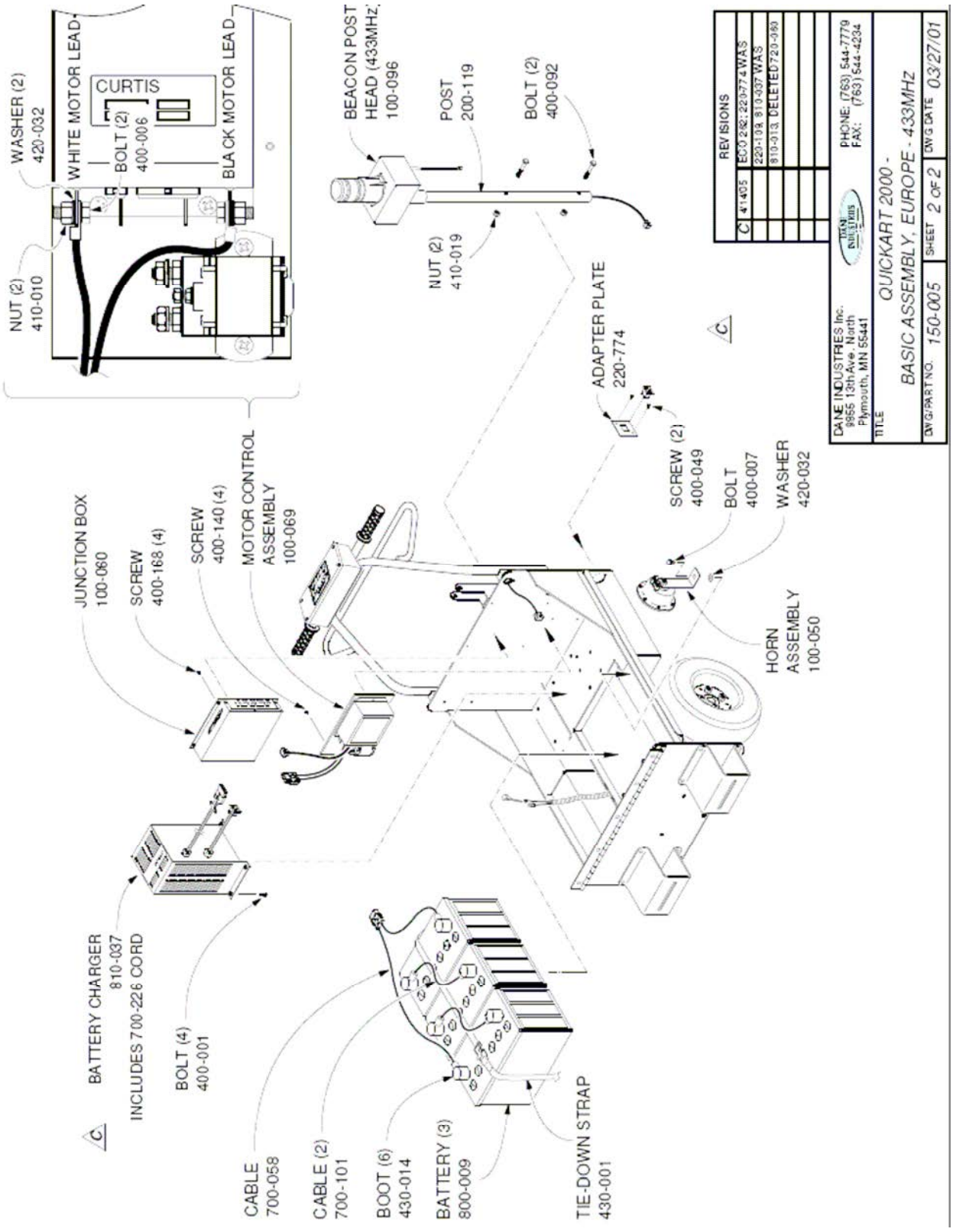




7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

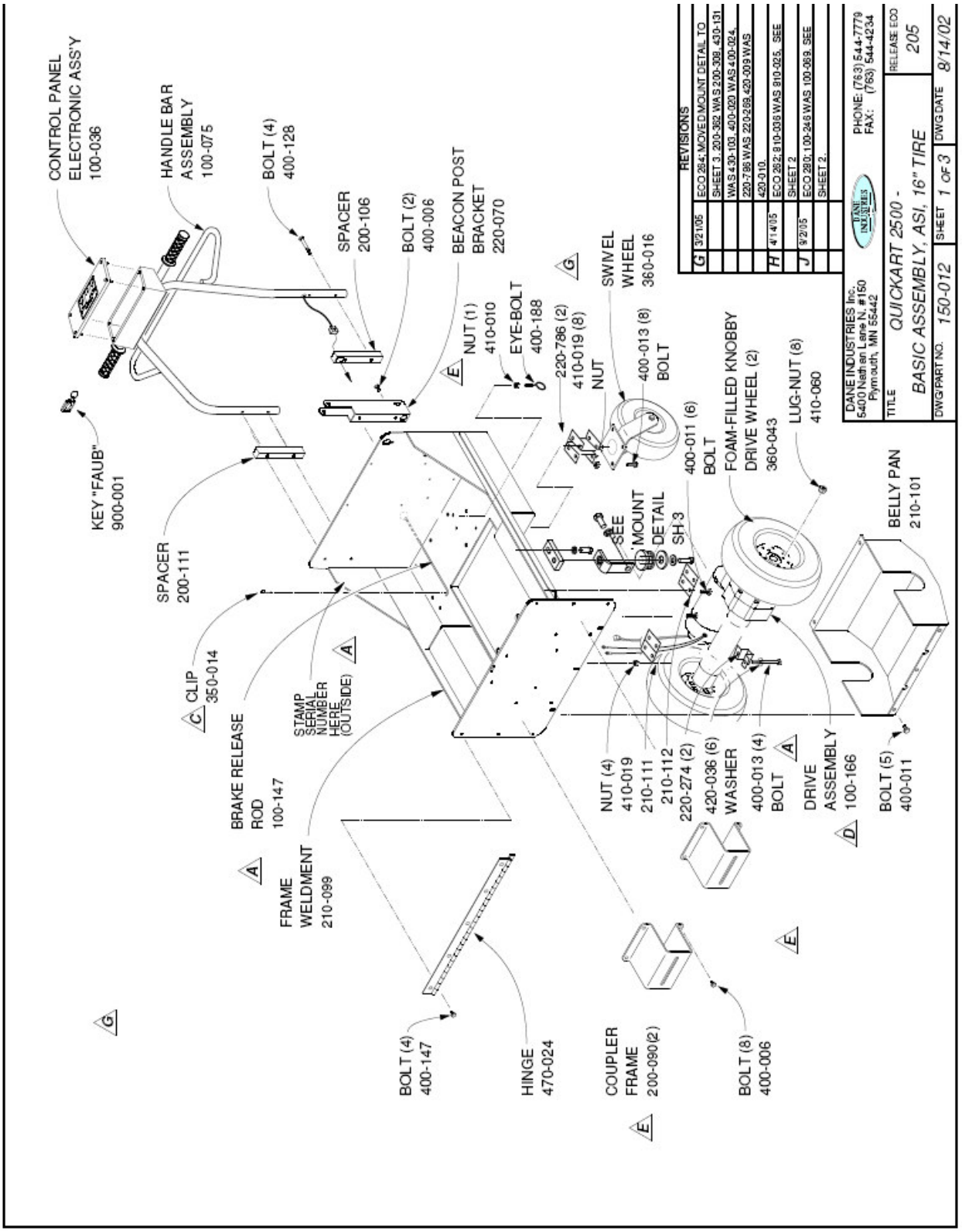
150-005 QuicKART 2000 - BASIC ASSEMBLY, EUROPE - 433 MHz


CONTROL PANEL ELECTRONIC ASSY 100-036
HANDLE BAR ASSEMBLY 100-075
BOLT (4) 400-128
SPACER 200-106
BOLT (2) 400-006
BEACON POST BRACKET 220-070
NUT (1) 410-010
EYE-BOLT 400-188
SWIVEL WHEEL 360-016
FOAM-FILLED KNOBBY DRIVE WHEEL (2) 360-008
LUG-NUT (8) 410-034
BELLY PAN 210-037
KEY "FAUB" 900-001
SPACER 200-111
CLIP 350-014
MECHANICAL BRAKE RELEASE 100-034
STAMP SERIAL NUMBER HERE
FRAME WELDMENT 210-035
NUT (4) 410-019
BOLT 400-013
NUT (4) 410-019
WASHER 420-036
BOLT 400-123
DRIVE ASSEMBLY 100-035
BOLT (5) 400-011
BOLT (4) 400-147
HINGE 470-024
COUPLER FRAME 200-090(2)
BOLT (8) 400-006
REVISIONS
B 10603 ECO 238 ADDED 200-090(2).
DELETED 100-101 AND 100-102 410-010 WAS (2).
C 41405 ECO 282 220-074 WAS 220-103, 810-037 WAS 810-013. DELETED 720-060
SEE SHEET 2
DANE INDUSTRIES Inc. 9665 13th Ave. North Plymouth, MN 55441
PHONE: (763) 544-7779 FAX: (763) 544-4234
TITLE QUICKART 2000 - BASIC ASSEMBLY, EUROPE - 433MHz
DWG/PART NO. 150-005 SHEET 1 OF 2 DWG DATE 03/27/01

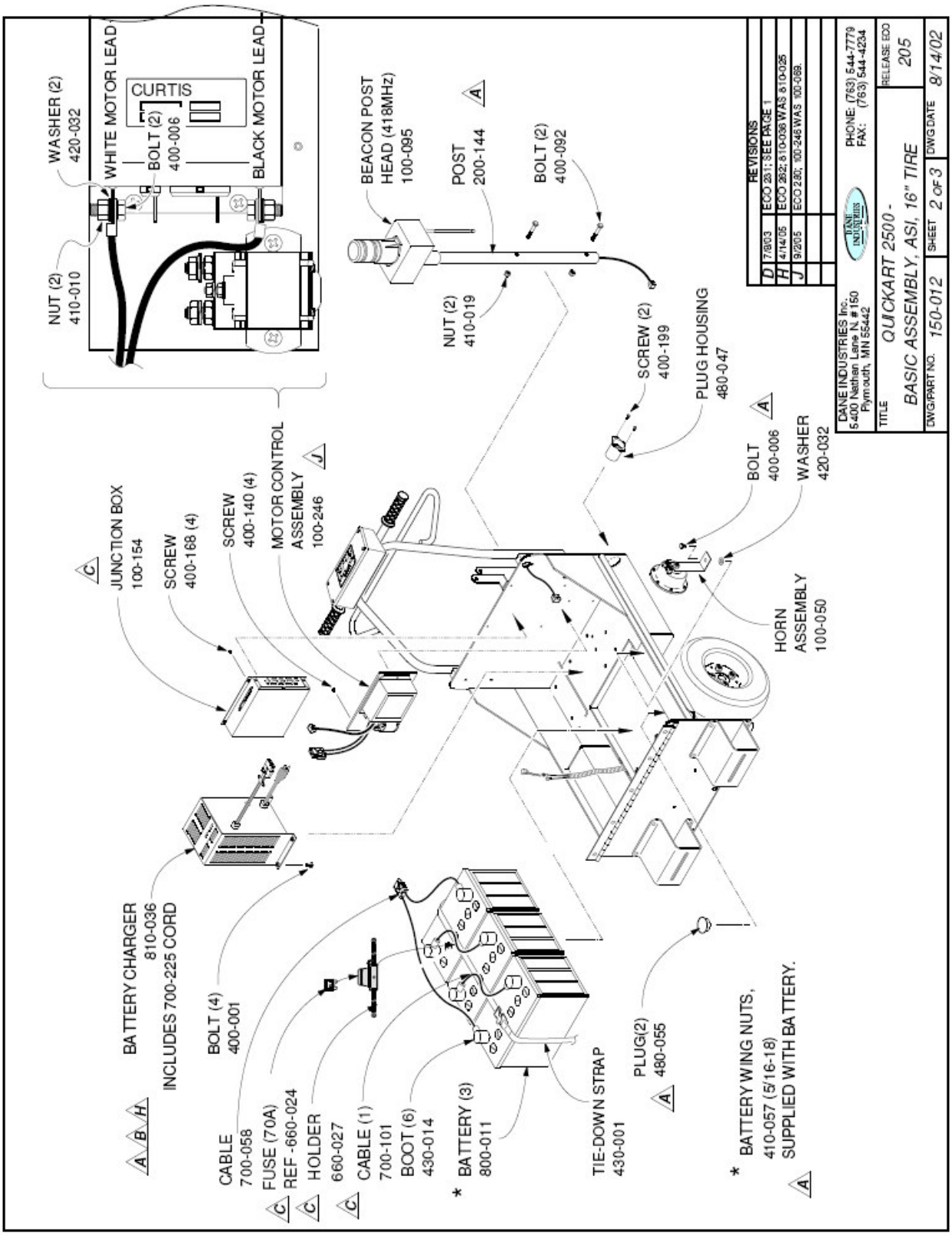


7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

150-012 QuicKART 2500 - BASIC ASSEMBLY, 16” TIRE


CONTROL PANEL ELECTRONIC ASS'Y 100-036
HANDLE BAR ASSEMBLY 100-075
BOLT (4) 400-128
SPACER 200-106
BOLT (2) 400-006
BEACON POST BRACKET 220-070
NUT (1) 410-010
EYE-BOLT 400-188
220-786 (2)
410-019 (8) NUT
SWIVEL WHEEL 360-016
400-013 (8) BOLT
KEY "FAUB" 900-001
SPACER 200-111
CLIP 350-014
BRAKE RELEASE ROD 100-147
STAMP SERIAL NUMBER HERE (OUTSIDE)
FRAME WELDMENT 210-099
SEE MOUNT DETAIL SH 3
400-011 (6) BOLT
FOAM-FILLED KNOBBY DRIVE WHEEL (2) 360-043
LUG-NUT (8) 410-060
BELLY PAN 210-101
NUT (4) 410-019
210-111
210-112
220-274 (2)
420-036 (6) WASHER
400-013 (4) BOLT
DRIVE ASSEMBLY 100-166
BOLT (5) 400-011
BOLT (4) 400-147
HINGE 470-024
COUPLER FRAME 200-090(2)
BOLT (8) 400-006
REVISIONS
G 3/21/06 ECO 264; MOVED MOUNT DETAIL TO SHEET 3. 200-382 WAS 200-308, 430-131 WAS 430-103, 400-020 WAS 400-024, 220-786 WAS 220-268, 420-009 WAS 420-010.
H 4/14/05 ECO 262; 810-036 WAS 810-025, SEE SHEET 2
J 9/2/05 ECO 280; 100-246 WAS 100-089, SEE SHEET 2.
DANE INDUSTRIES Inc. 5400 Nathan Lane N. #150 Plymouth, MN 55442
PHONE: (763) 544-7779 FAX: (763) 544-4234
TITLE QUICKART 2500 - BASIC ASSEMBLY, ASI, 16" TIRE
RELEASE ECO 205
DWG PART NO. 150-012
SHEET 1 OF 3
DWG DATE 8/14/02

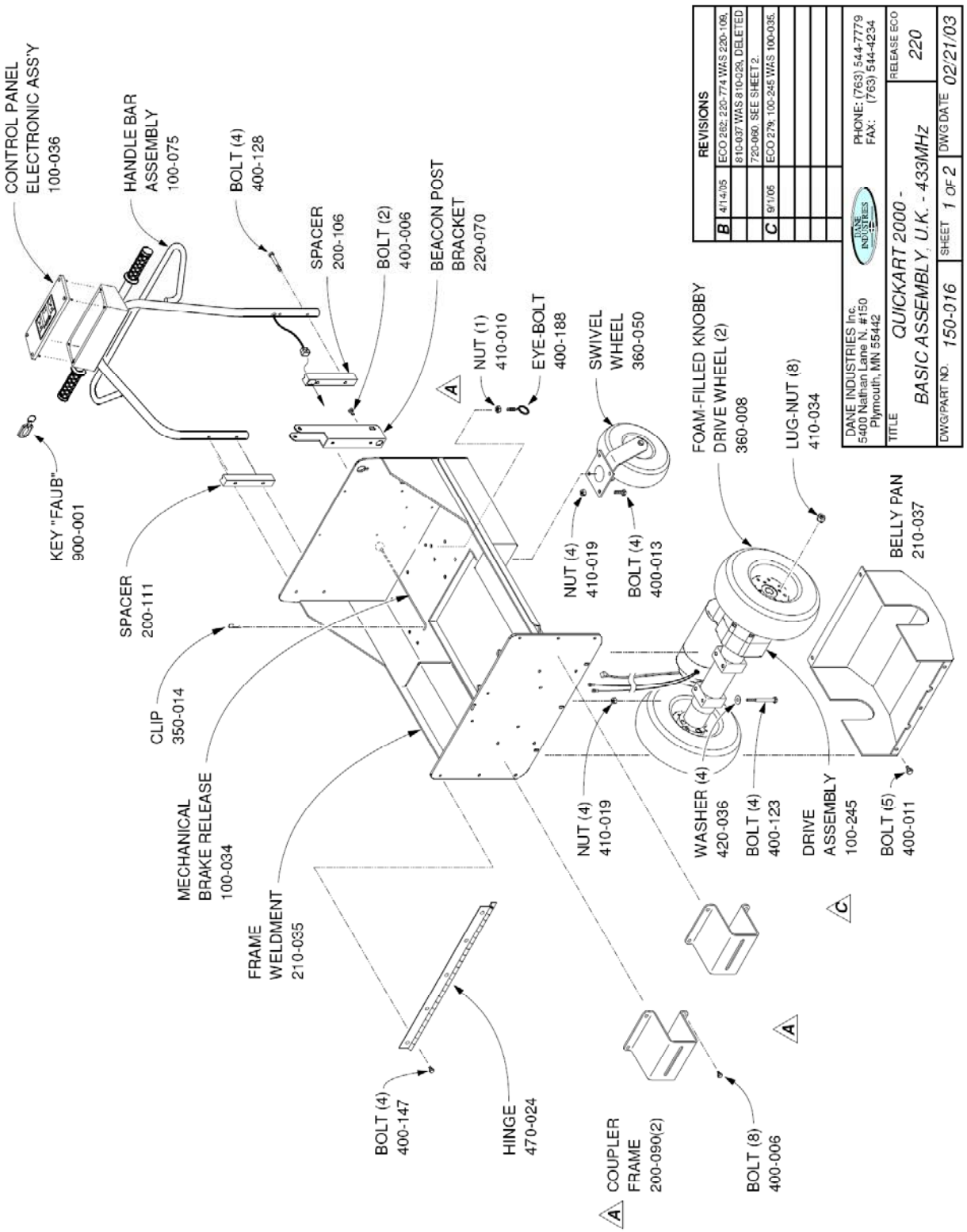
7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com



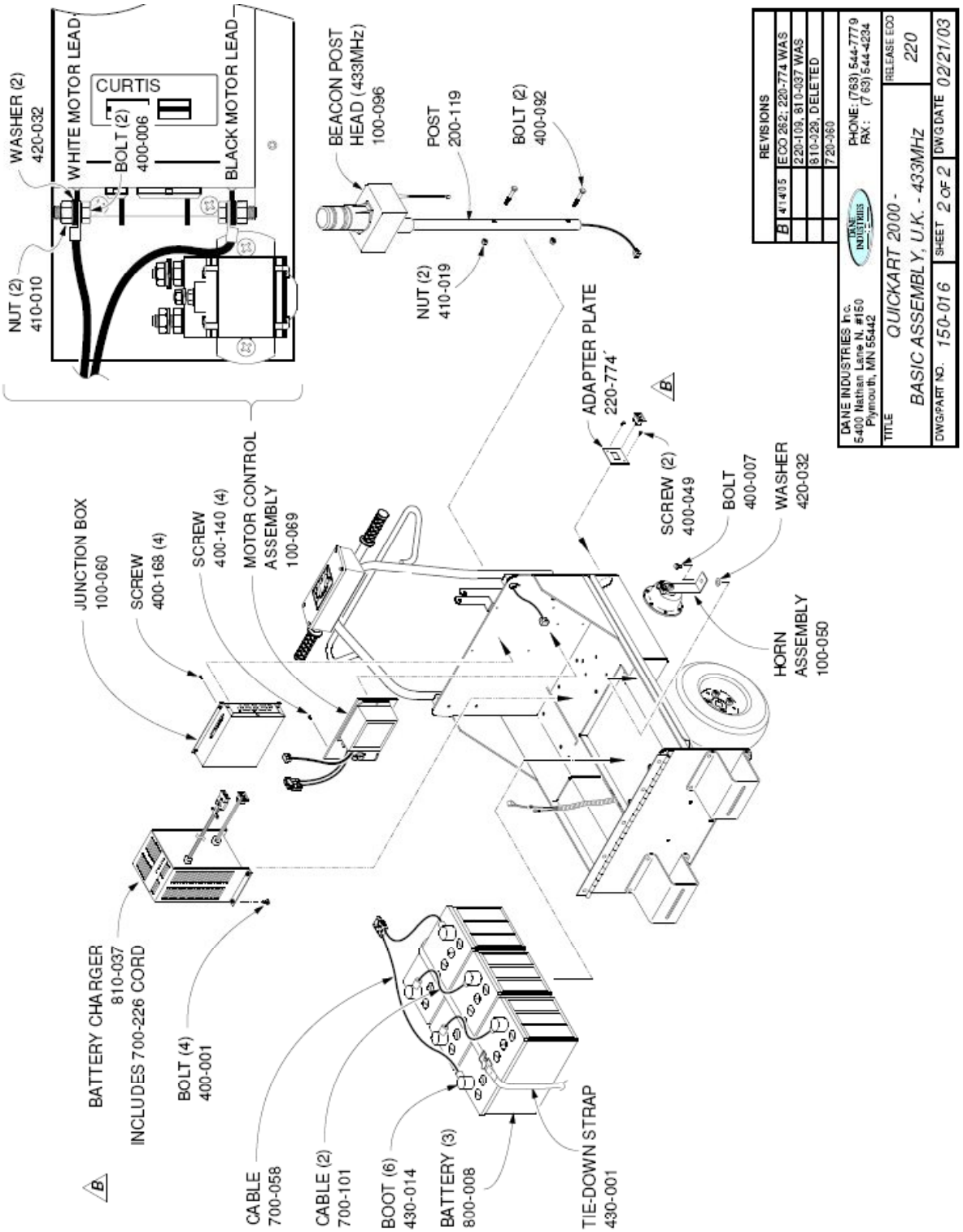
7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

200-362 PLATE, ISOLATOR
430-131 ISOLATOR
400-013 BOLT 3/8 X 1
420-008 3/8 LK WASHER
220-614 MOUNT, MOTOR
400-022 BOLT 1/2 X 1.25
420-010 1/2 LK WASHER
27 FT-LBS, USE LOCTITE
420-047 WASHER 1/2 X 1.5 X .125
420-009 WASHER 7/16 LOCK
400-020 BOLT 7/16 X 1.75
MOUNT DETAIL
REVISIONS
G 471305 ECO 264: ADDED SHEET 3
DANE INDUSTRIES Inc.
5400 Nathan Lane N. #150
Plymouth, MN 55442
PHONE: (763) 544-7779
FAX: (763) 544-4234
TITLE
QUICKART 2500 -
BASIC ASSEMBLY, ASI, 16" TIRE
RELEASE ECO
205
DWG/PART NO. 150-012
SHEET 3 OF 3
DWG DATE 8/14/02

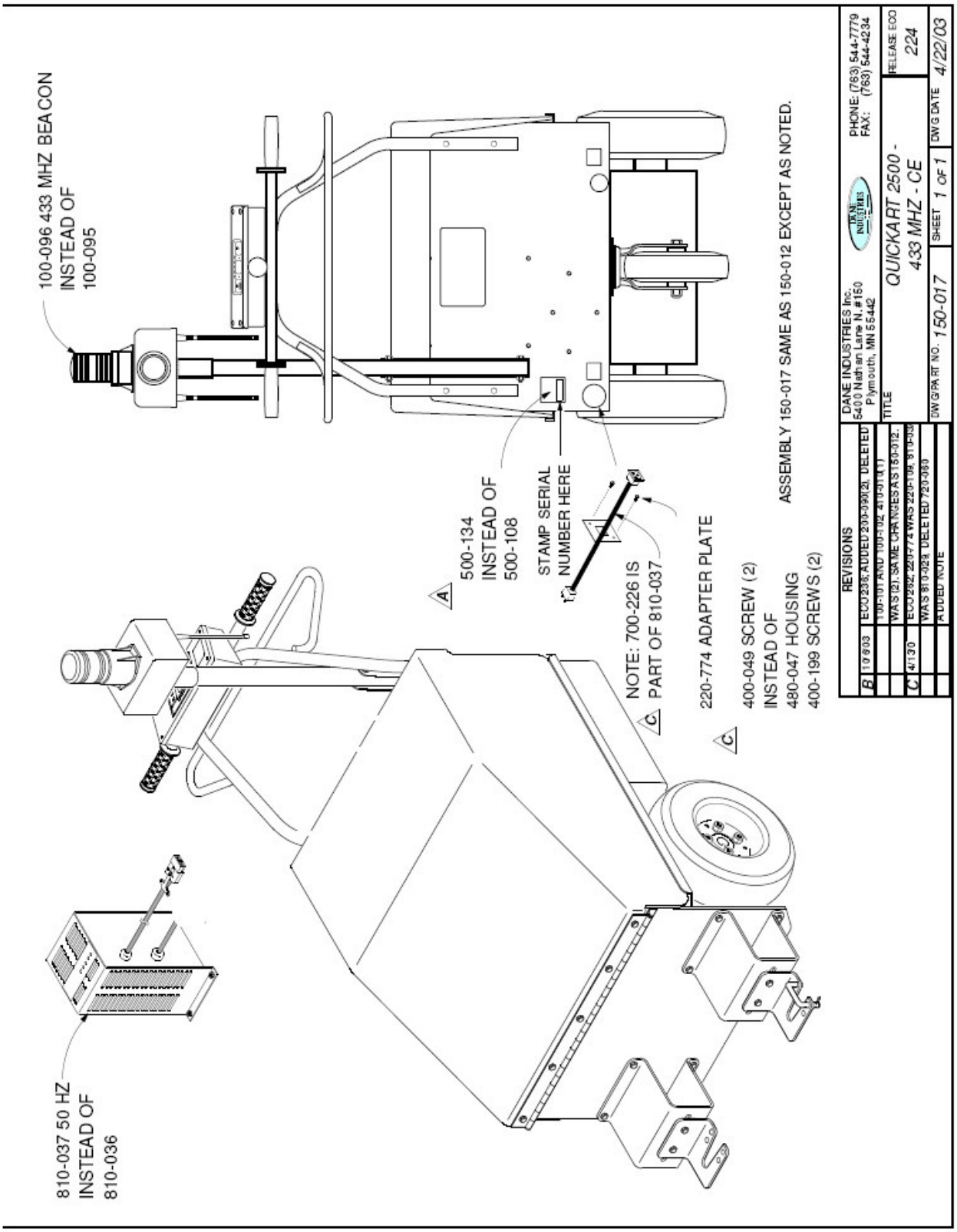
150-016 QuicKART 2000 - BASIC ASSEMBLY, UK - 433 MHz



7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

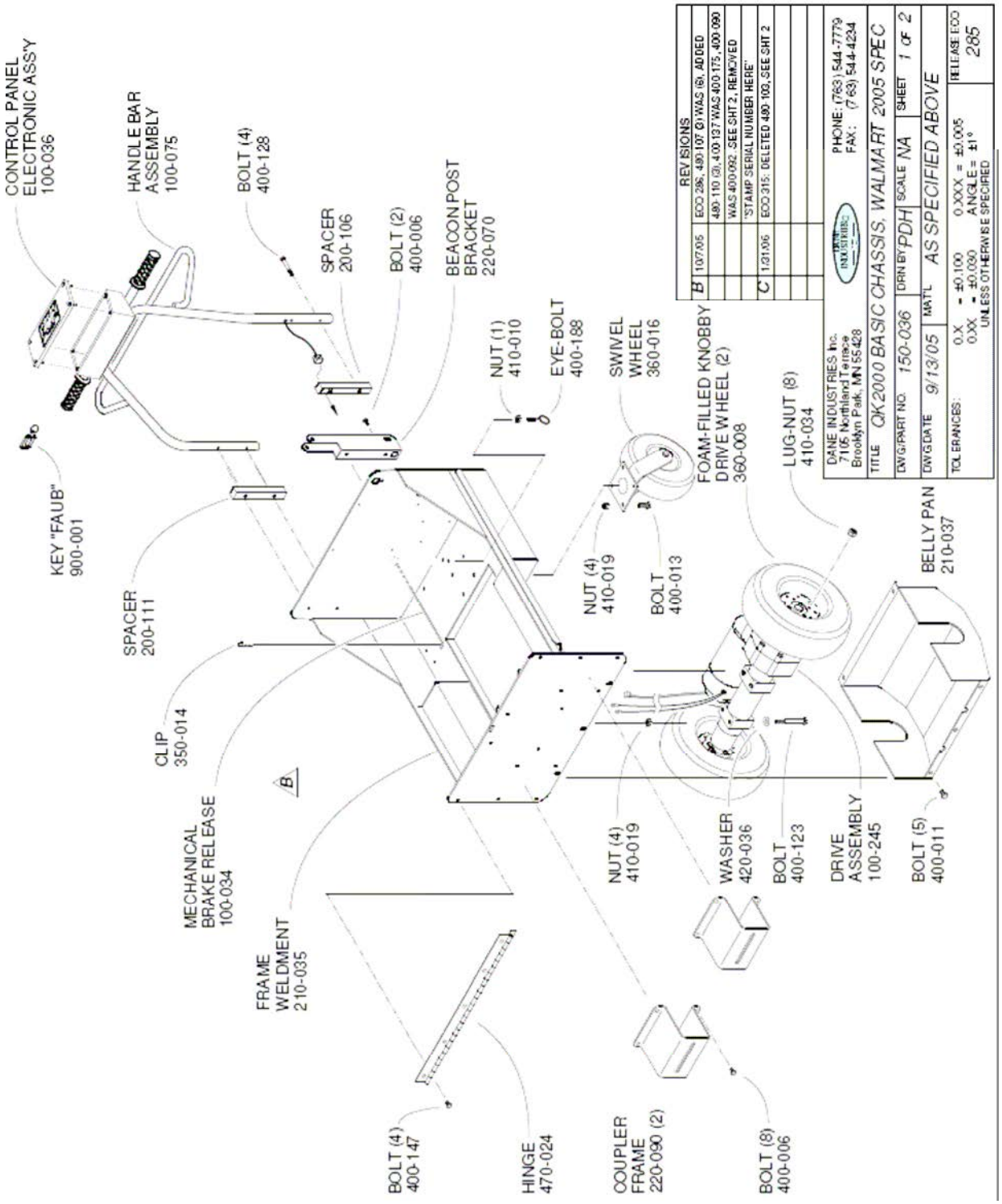

WASHER (2)
420-032
WHITE MOTOR LEAD
CURTIS
BOLT (2)
400-006
BLACK MOTOR LEAD
NUT (2)
410-010
BEACON POST
HEAD (433MHz)
100-096
POST
200-119
BOLT (2)
400-092
NUT (2)
410-019
ADAPTER PLATE
220-774
B
SCREW (2)
400-049
BOLT
400-007
WASHER
420-032
HORN
ASSEMBLY
100-050
JUNCTION BOX
100-060
SCREW
400-168 (4)
SCREW
400-140 (4)
MOTOR CONTROL
ASSEMBLY
100-069
BATTERY CHARGER
810-037
INCLUDES 700-226 CORD
BOLT (4)
400-001
CABLE
700-058
CABLE (2)
700-101
BOOT (6)
430-014
BATTERY (3)
800-008
TIE-DOWN STRAP
430-001
B
REVISIONS
B 4/14/05 ECO 262; 220-774 WAS
220-109, 810-037 WAS
810-029, DELETED
720-060
DANE INDUSTRIES Inc.
5400 Nathan Lane N. #150
Plymouth, MN 55442
PHONE: (763) 544-7779
FAX: (763) 544-4234
TITLE
QUICKART 2000 -
BASIC ASSEMBLY, U.K. - 433MHz
RELEASE ECO
220
DWG/PART NO. 150-016
SHEET 2 OF 2
DWG DATE 02/21/03

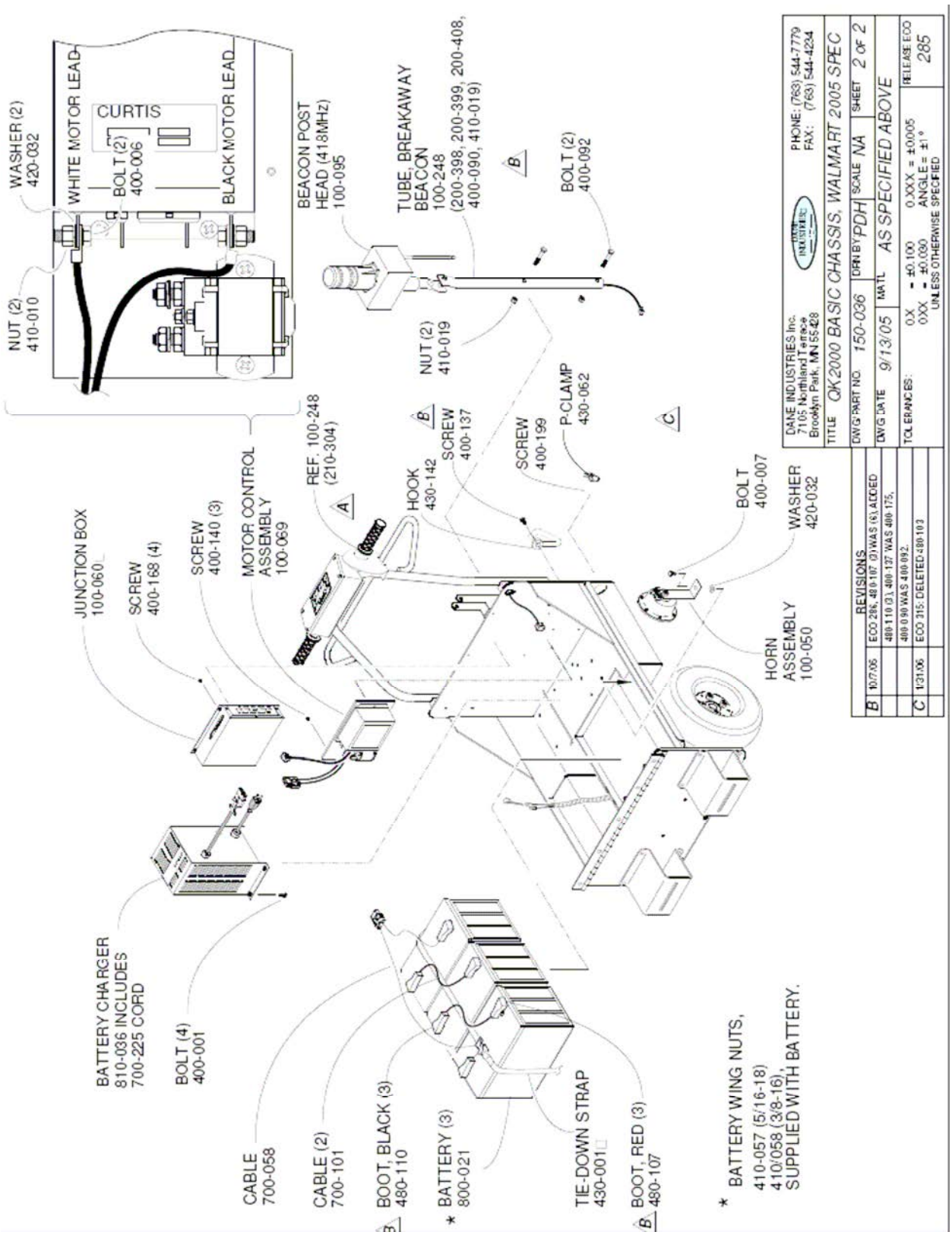
150-017 QuicKART 2500 - 433 MHZ - CE



7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

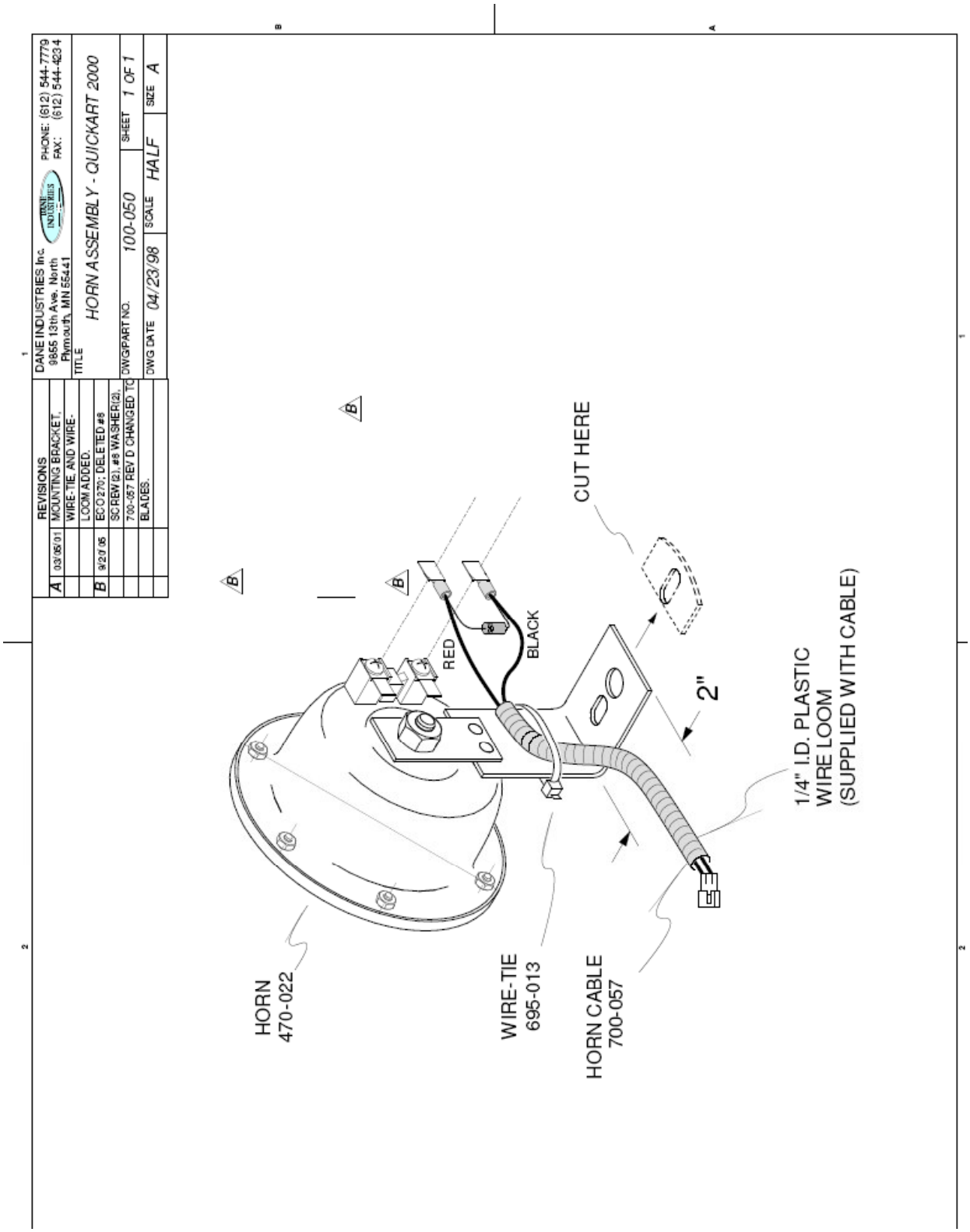
150-036 QuicKART 2000 - BASIC CHASSIS, WALMART



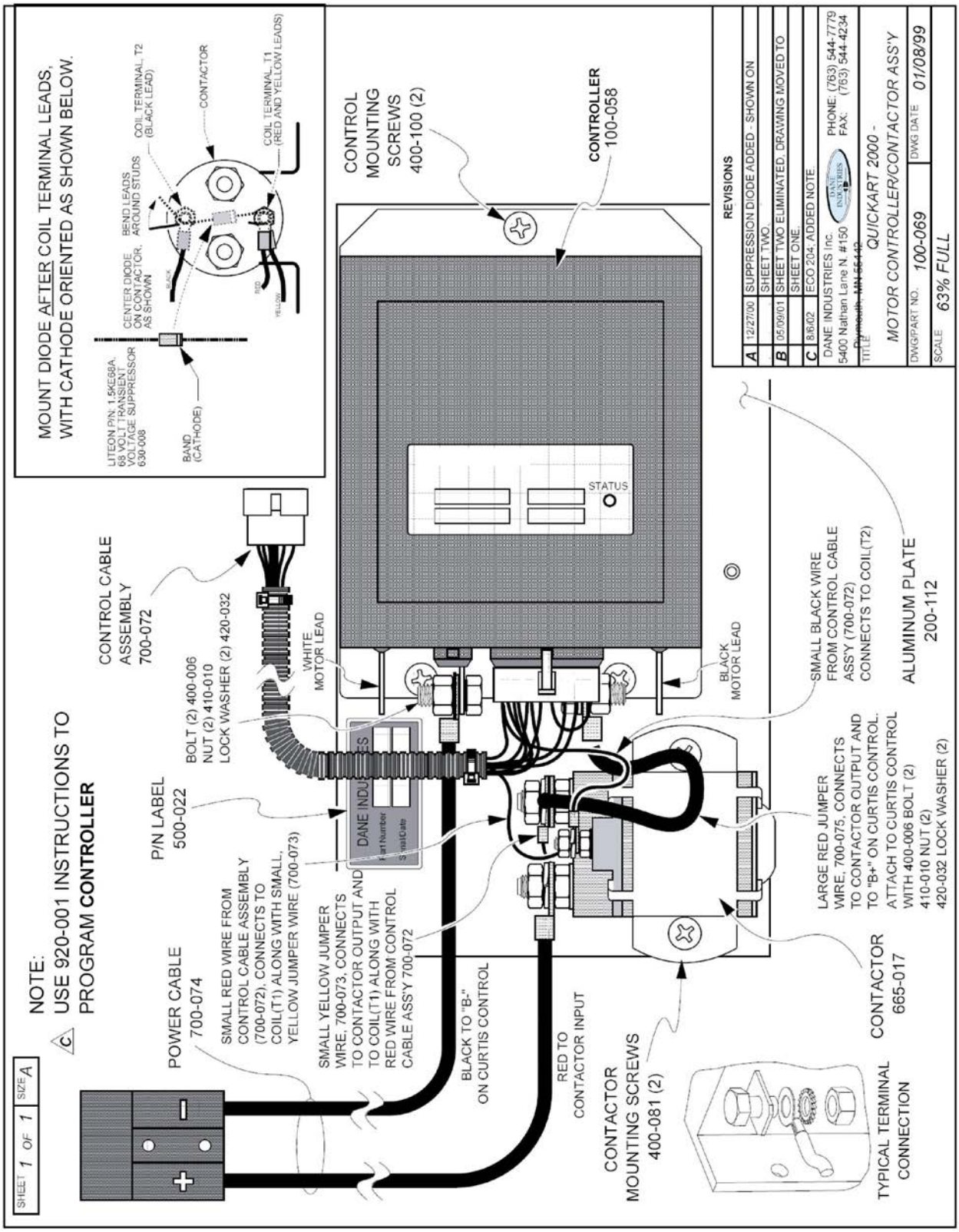

WASHER (2) 420-032
WHITE MOTOR LEAD
CURTIS
BOLT (2) 400-006
BLACK MOTOR LEAD
NUT (2) 410-010
BEACON POST HEAD (418MHz) 100-095
TUBE, BREAKAWAY BEACON 100-248 (200-398, 200-399, 200-408, 400-090, 410-019)
BOLT (2) 400-092
NUT (2) 410-019
REF. 100-248 (210-304)
HOOK 430-142
SCREW 400-137
SCREW 400-199
P-CLAMP 430-062
BOLT 400-007
WASHER 420-032
JUNCTION BOX 100-060
SCREW 400-168 (4)
SCREW 400-140 (3)
MOTOR CONTROL ASSEMBLY 100-069
HORN ASSEMBLY 100-050
BATTERY CHARGER 810-036 INCLUDES 700-225 CORD
BOLT (4) 400-001
CABLE 700-058
CABLE (2) 700-101
BOOT, BLACK (3) 480-110
BATTERY (3) 800-021
TIE-DOWN STRAP 430-001
BOOT, RED (3) 480-107
BATTERY WING NUTS, 410-057 (5/16-18) 410-058 (3/8-16), SUPPLIED WITH BATTERY.
DANE INDUSTRIES Inc. 7105 Northland Terrace Brooklyn Park, MN 55428
PHONE: (763) 544-7779 FAX: (763) 544-4234
TITLE QK2000 BASIC CHASSIS, WALMART 2005 SPEC
DWG PART NO. 150-036
DRN BY PDH
SCALE NA
SHEET 2 OF 2
DWG DATE 9/13/05
MATL AS SPECIFIED ABOVE
TOLERANCES: 0.X = ±0.100 0.XXX = ±0.005 0.XX = ±0.030 ANGLE = ±1° UNLESS OTHERWISE SPECIFIED
RELEASE ECO 285
REVISIONS
B 10/7/05 ECO 296: 480-107 (2) WAS (6) ADDED
480-110 (3), 400-137 WAS 400-175,
400-090 WAS 400-092.
C 1/31/06 ECO 315: DELETED 480-103

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

100-050 HORN ASSEMBLY

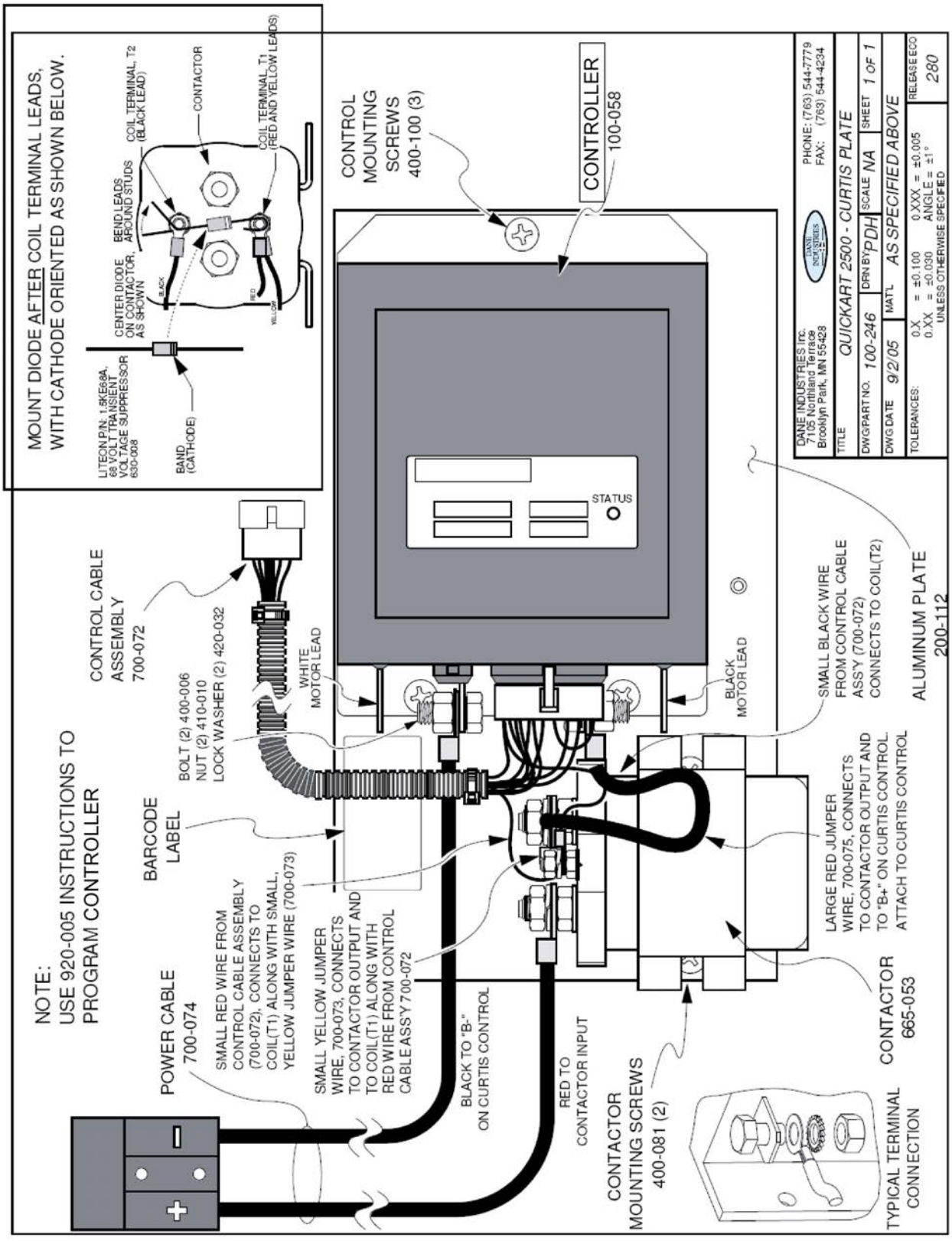


100-069 QuicKART 2000 - MOTOR CONTROLLER/CONTACTOR ASSY


MOUNT DIODE AFTER COIL TERMINAL LEADS, WITH CATHODE ORIENTED AS SHOWN BELOW.
LITEON P/N: 1.5KE68A, 68 VOLT TRANSIENT VOLTAGE SUPPRESSOR 630-008
BAND (CATHODE)
CENTER DIODE ON CONTACTOR, AS SHOWN
BEND LEADS AROUND STUDS
COIL TERMINAL, T2 (BLACK LEAD)
CONTACTOR
COIL TERMINAL, T1 (RED AND YELLOW LEADS)
CONTROL MOUNTING SCREWS 400-100 (2)
CONTROLLER 100-058
REVISIONS
A 12/27/00 SUPPRESSION DIODE ADDED - SHOWN ON SHEET TWO.
B 05/09/01 SHEET TWO ELIMINATED, DRAWING MOVED TO SHEET ONE.
C 8/6/02 ECO 204: ADDED NOTE
DANE INDUSTRIES Inc. 5400 Nathan Lane N. #150 Plymouth, MN 55442
PHONE: (763) 544-7779 FAX: (763) 544-4234
TITLE QUICKART 2000 - MOTOR CONTROLLER/CONTACTOR ASS'Y
DWG/PART NO. 100-069
DWG DATE 01/08/99
SCALE 63% FULL
SHEET 1 OF 1 SIZE A
NOTE:
USE 920-001 INSTRUCTIONS TO PROGRAM CONTROLLER
CONTROL CABLE ASSEMBLY 700-072
BOLT (2) 400-006
NUT (2) 410-010
LOCK WASHER (2) 420-032
WHITE MOTOR LEAD
BLACK MOTOR LEAD
STATUS
SMALL BLACK WIRE FROM CONTROL CABLE ASS'Y (700-072) CONNECTS TO COIL(T2)
ALUMINUM PLATE 200-112
P/N LABEL 500-022
POWER CABLE 700-074
SMALL RED WIRE FROM CONTROL CABLE ASSEMBLY (700-072), CONNECTS TO COIL(T1) ALONG WITH SMALL, YELLOW JUMPER WIRE (700-073)
SMALL YELLOW JUMPER WIRE, 700-073, CONNECTS TO CONTACTOR OUTPUT AND TO COIL(T1) ALONG WITH RED WIRE FROM CONTROL CABLE ASS'Y 700-072
BLACK TO "B-" ON CURTIS CONTROL
RED TO CONTACTOR INPUT
LARGE RED JUMPER WIRE, 700-075, CONNECTS TO CONTACTOR OUTPUT AND TO "B+" ON CURTIS CONTROL. ATTACH TO CURTIS CONTROL WITH 400-006 BOLT (2) 410-010 NUT (2) 420-032 LOCK WASHER (2)
CONTACTOR 665-017
CONTACTOR MOUNTING SCREWS 400-081 (2)
TYPICAL TERMINAL CONNECTION

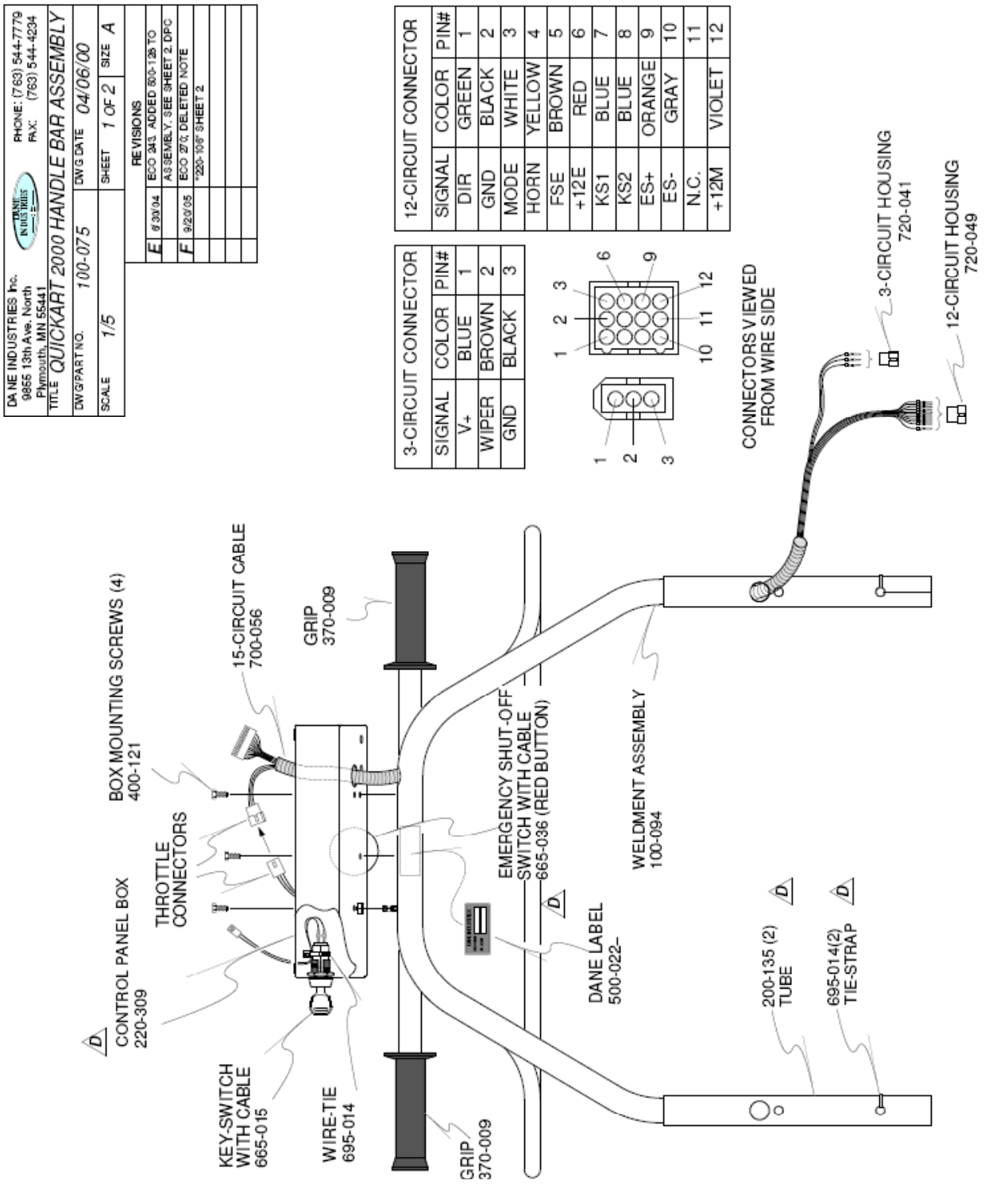
7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

100-246 QuicKART 2500 - MOTOR CONTROLLER/CONTACTOR ASSY


MOUNT DIODE AFTER COIL TERMINAL LEADS, WITH CATHODE ORIENTED AS SHOWN BELOW.
LITEON P/N: 1.5KE68A, 68 VOLT TRANSIENT VOLTAGE SUPPRESSOR 630-008
BAND (CATHODE)
CENTER DIODE ON CONTACTOR, AS SHOWN
BEND LEADS AROUND STUDS
COIL TERMINAL T2 (BLACK LEAD)
CONTACTOR
COIL TERMINAL T1 (RED AND YELLOW LEADS)
CONTROL MOUNTING SCREWS 400-100 (3)
CONTROLLER 100-058
STATUS
DANE INDUSTRIES Inc. 7105 Northland Terrace Brooklyn Park, MN 55428
PHONE: (763) 544-7779 FAX: (763) 544-4234
TITLE QUICKART 2500 - CURTIS PLATE
DWG/PART NO. 100-246
DRN BY PDH
SCALE NA
SHEET 1 OF 1
DWG DATE 9/2/05
MATL AS SPECIFIED ABOVE
TOLERANCES: 0.X = ±0.100 0.XX = ±0.030 0.XXX = ±0.005 ANGLE = ±1° UNLESS OTHERWISE SPECIFIED
RELEASE ECO 280
NOTE: USE 920-005 INSTRUCTIONS TO PROGRAM CONTROLLER
CONTROL CABLE ASSEMBLY 700-072
BOLT (2) 400-006 NUT (2) 410-010 LOCK WASHER (2) 420-032
WHITE MOTOR LEAD
BLACK MOTOR LEAD
SMALL BLACK WIRE FROM CONTROL CABLE ASS'Y (700-072) CONNECTS TO COIL(T2)
ALUMINUM PLATE 200-112
BARCODE LABEL
SMALL RED WIRE FROM CONTROL CABLE ASSEMBLY (700-072), CONNECTS TO COIL(T1) ALONG WITH SMALL, YELLOW JUMPER WIRE (700-073)
SMALL YELLOW JUMPER WIRE, 700-073, CONNECTS TO CONTACTOR OUTPUT AND TO COIL(T1) ALONG WITH RED WIRE FROM CONTROL CABLE ASS'Y 700-072
LARGE RED JUMPER WIRE, 700-075, CONNECTS TO CONTACTOR OUTPUT AND TO "B+" ON CURTIS CONTROL. ATTACH TO CURTIS CONTROL
POWER CABLE 700-074
BLACK TO "B-" ON CURTIS CONTROL
RED TO CONTACTOR INPUT
CONTACTOR 665-053
CONTACTOR MOUNTING SCREWS 400-081 (2)
TYPICAL TERMINAL CONNECTION

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

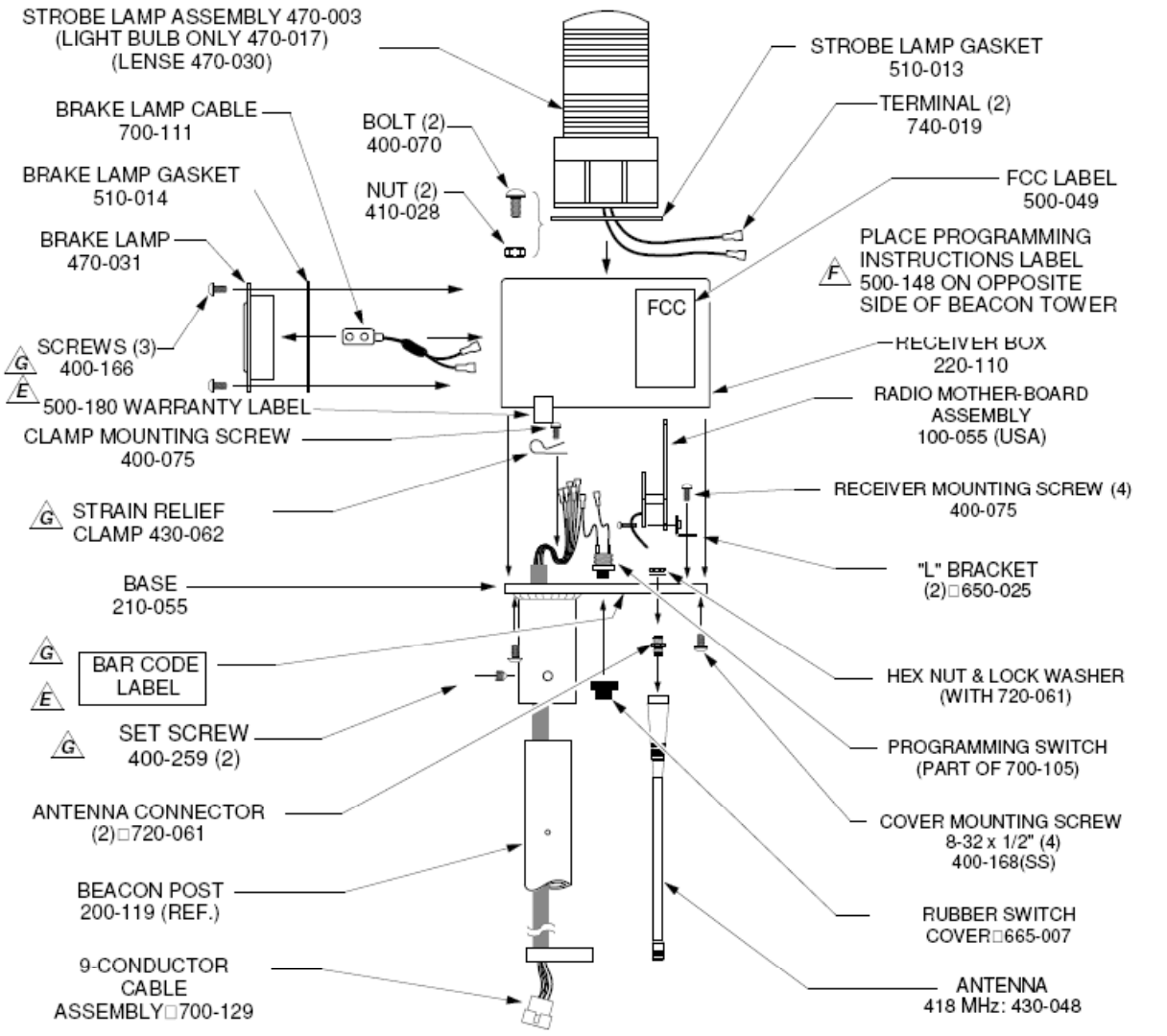
100-075 QuicKART 2000 - HANDLEBAR ASSEMBLY

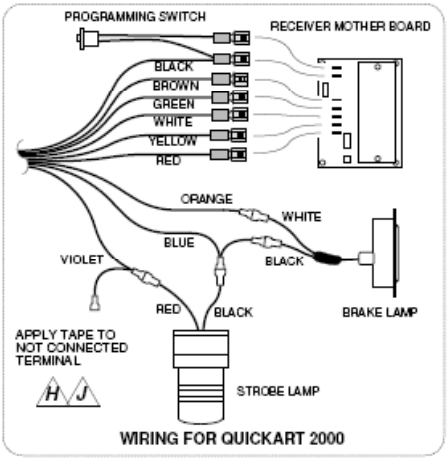


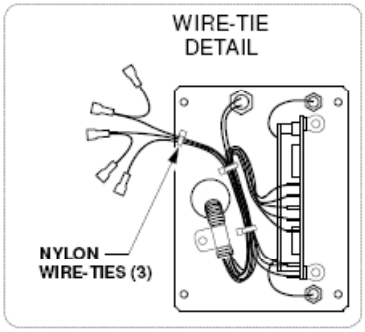
DANE INDUSTRIES Inc.
9855 13th Ave. North
Plymouth, MN 55441
PHONE: (763) 544-7779
FAX: (763) 544-4234
TITLE QUICKART 2000 HANDLE BAR ASSEMBLY
DWG/PART NO. 100-075
DWG DATE 04/19/01
SCALE 5/12
SHEET 2 OF 2
SIZE A
REVISIONS
E 9/30/04 ECO 243; ADDED 500-128 TO ASSEMBLY; SEE SHEET 2, DPC.
F 9/29/05 ECO 270; DELETED NOTE "220-106".
0.05" MINIMUM
ALUMINUM SPACER MUST SLIDE FREELY BETWEEN LEVER ARM AND PANEL BOX WALL, TO ENSURE AT LEAST 0.05" CLEARANCE AT END OF TRAVEL.
POT. LEVER ARM
CONTROL PANEL BOX
SHAFT END VIEW
BLACK (3)
BROWN (2)
BLUE (1)
POTENTIOMETER WIRE IDENTIFICATION
4-40 LOCK NUT 410-052
4-40 LOCK NUT 100-141 (410-052)
8-32 SCREW (2) 400-136
NYLON SPRING RETAINER 480-040
6-32 LOCKING NUT 100-141 (410-042)
POT. SHAFT LEVER ARM 100-141 (220-104)
6-32 x 3/4"LG 100-141 (400-193)
CONTROL PANEL BOX
HANDLE BAR TUBE (PARTIALLY SHOWN) 100-094
GRIP (2) 370-009
CABLE 100-141 (700-102)
POT. 100-141 (655-009)
WASHER
NUT
THROTTLE SHAFT & GRIP BAR 210-050 (PART OF 100-094)
4-40 x 5/8" BOLT 100-141 (400-198)
4-40 THREADED ROD 100-141 (400-180)
BALL LINK (2) 100-141 (460-021)
4-40 x 5/8" BOLT 400-198
LOCK NUT (2) 410-018
WASHER (2) 420-002
LABEL 500-128
SPRING 460-018
TRUSS HEAD BOLT (2) 400-083
THROTTLE SHAFT LEVER ARM 350-037

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

100-095 BEACON POST ASSEMBLY - QuicKART 2000







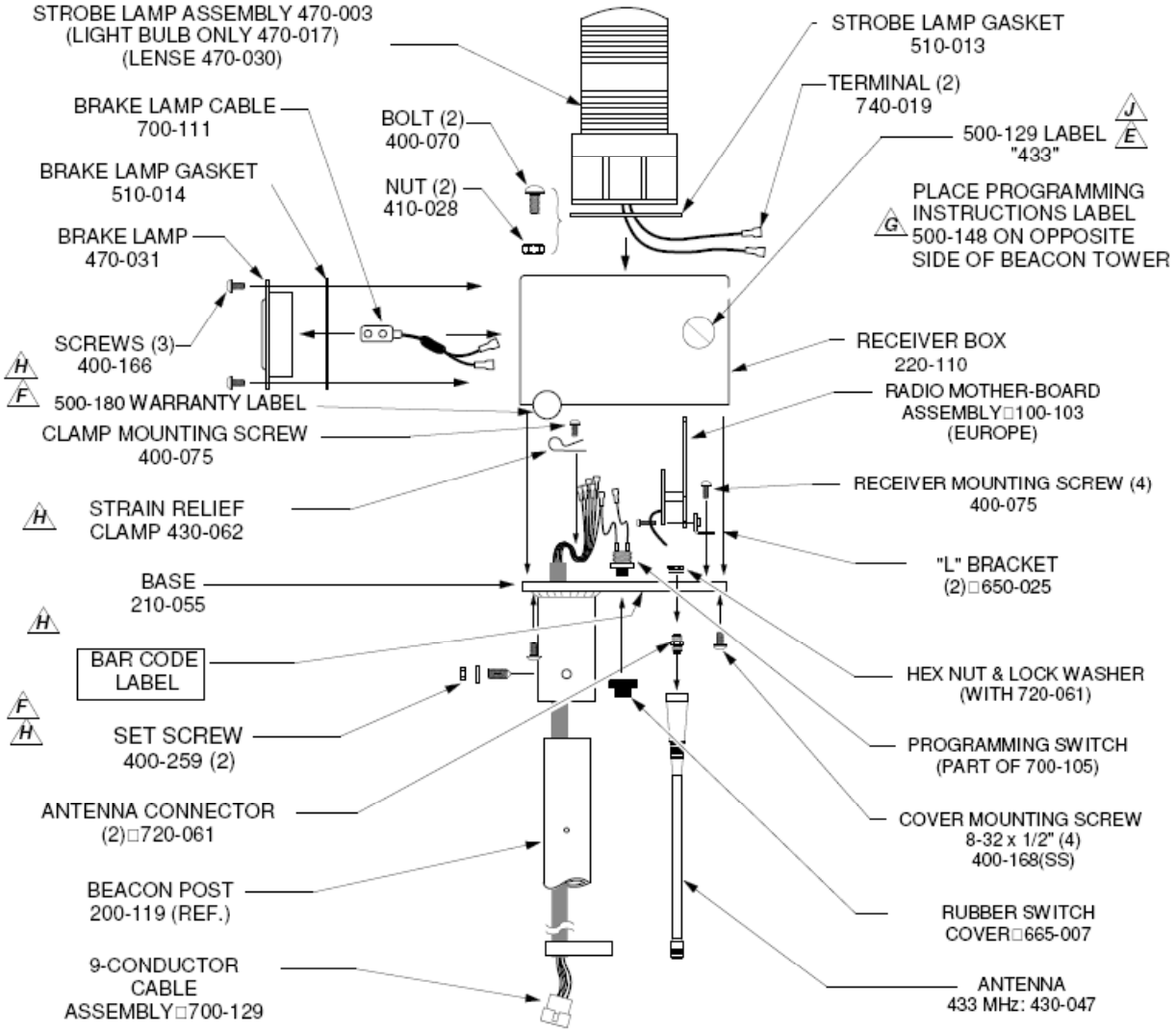
REVISIONS		
H	9/20/05	ECO 270; DELETED "NOT
		CONNECTED NOTE".
J	10/4/05	ECO 289; ADDED NOTE "APPLY TAPE
		TO NOT CONNECTED TERMINAL".

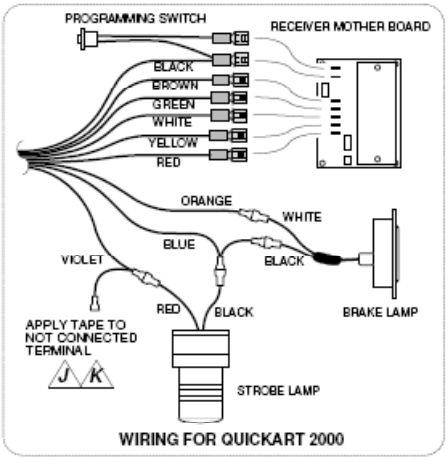
DANE INDUSTRIES
Inc. 9855 13th Ave. North
Plymouth, MN 55441
PHONE: (763) 544-7779
FAX: (763) 544-4234

TITLE: BEACON POST ASSEMBLY - QUICKART 2000 & 5000

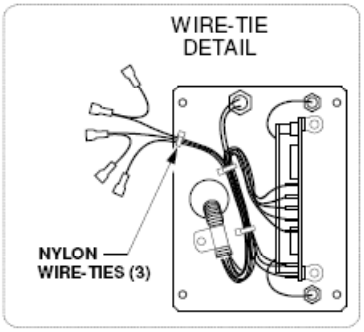
PART NO. 100-095 (USA) | SHEET 1 OF 1 | DATE 07/20/00

100-096 BEACON POST ASSEMBLY - QuicKART 2000 (EUROPE)





WIRING FOR QUICKART 2000



REVISIONS		
J	9/20/05	ECO 270; DELETED "NOT
		CONNECTED NOTE", 500-129 LABEL
		WAS "NO FCC LABEL REQUIRED".
K	10/5/05	ECO 289; ADDED NOTE "APPLY TAPE
		TO NOT CONNECTED TERMINAL".

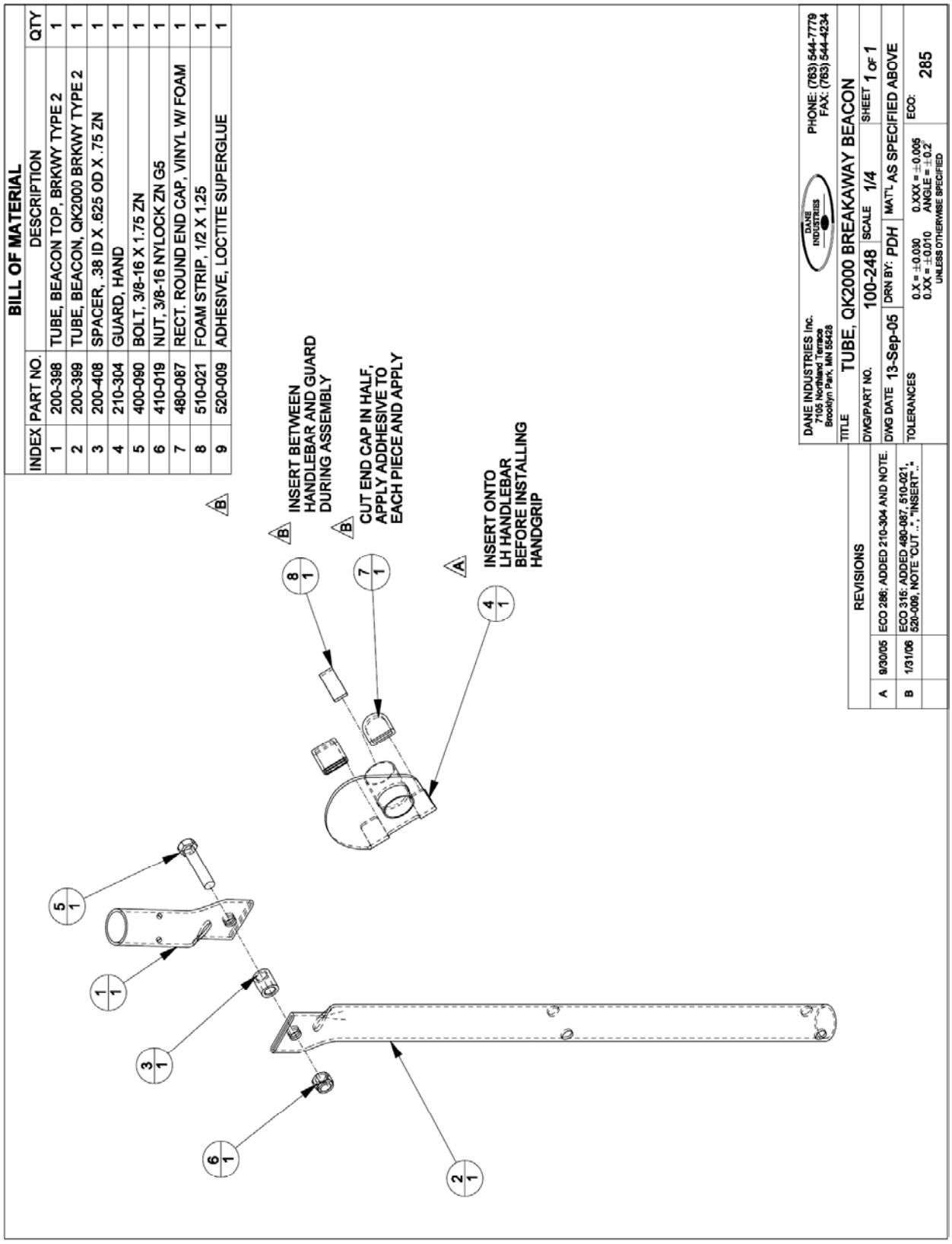
DANE INDUSTRIES Inc.
5400 Nathan Lane N. #150
Plymouth, MN 55442

PHONE: (763) 544-7779
FAX: (763) 544-4234

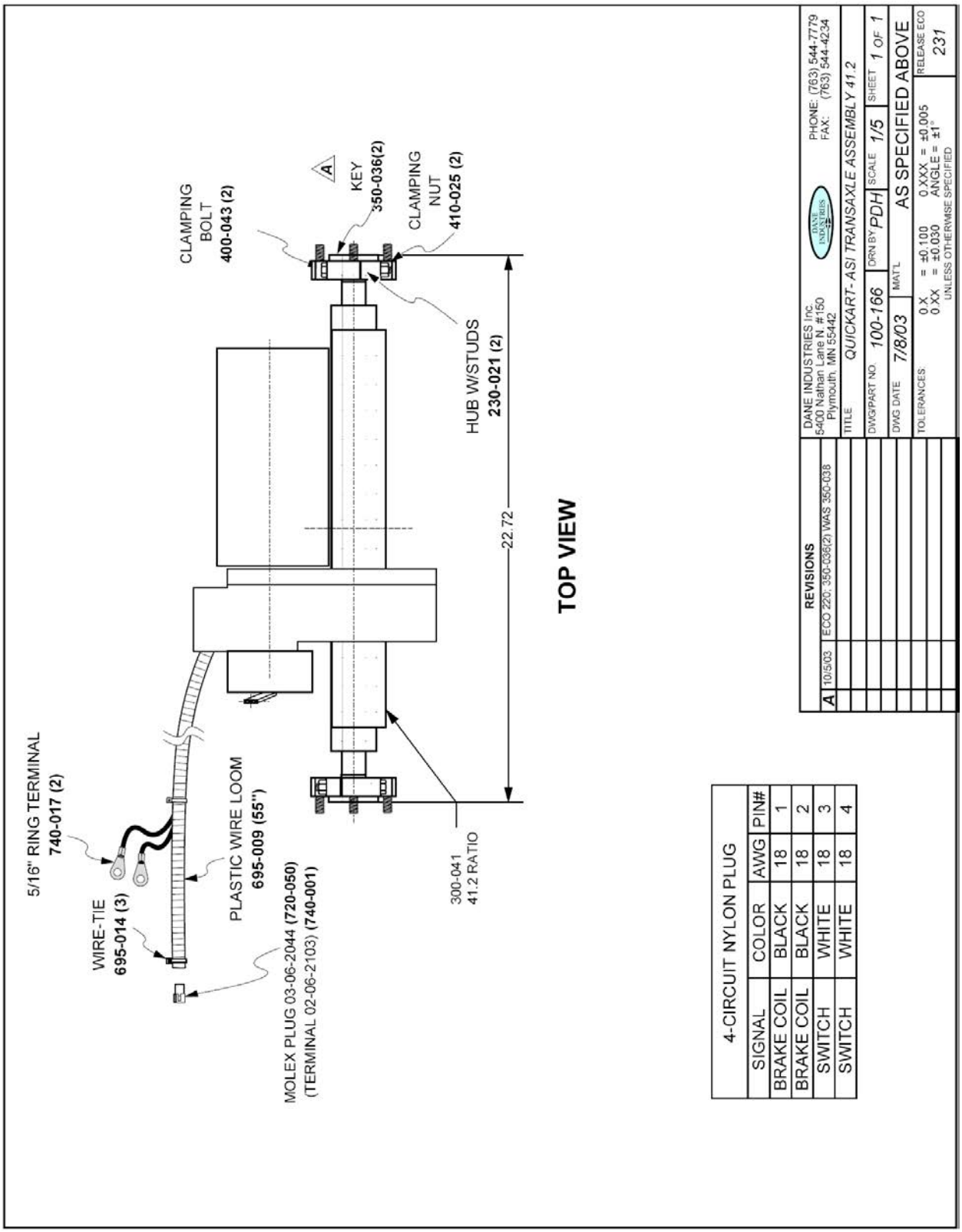
TITLE: *BEACON POST ASSEMBLY - QUICKART 2000 (EUROPE)*

PART NO. *100-096* | SHEET *1 OF 1* | DATE *07/24/00*

100-248 QuicKART 2000 - BREAKAWAY BEACON

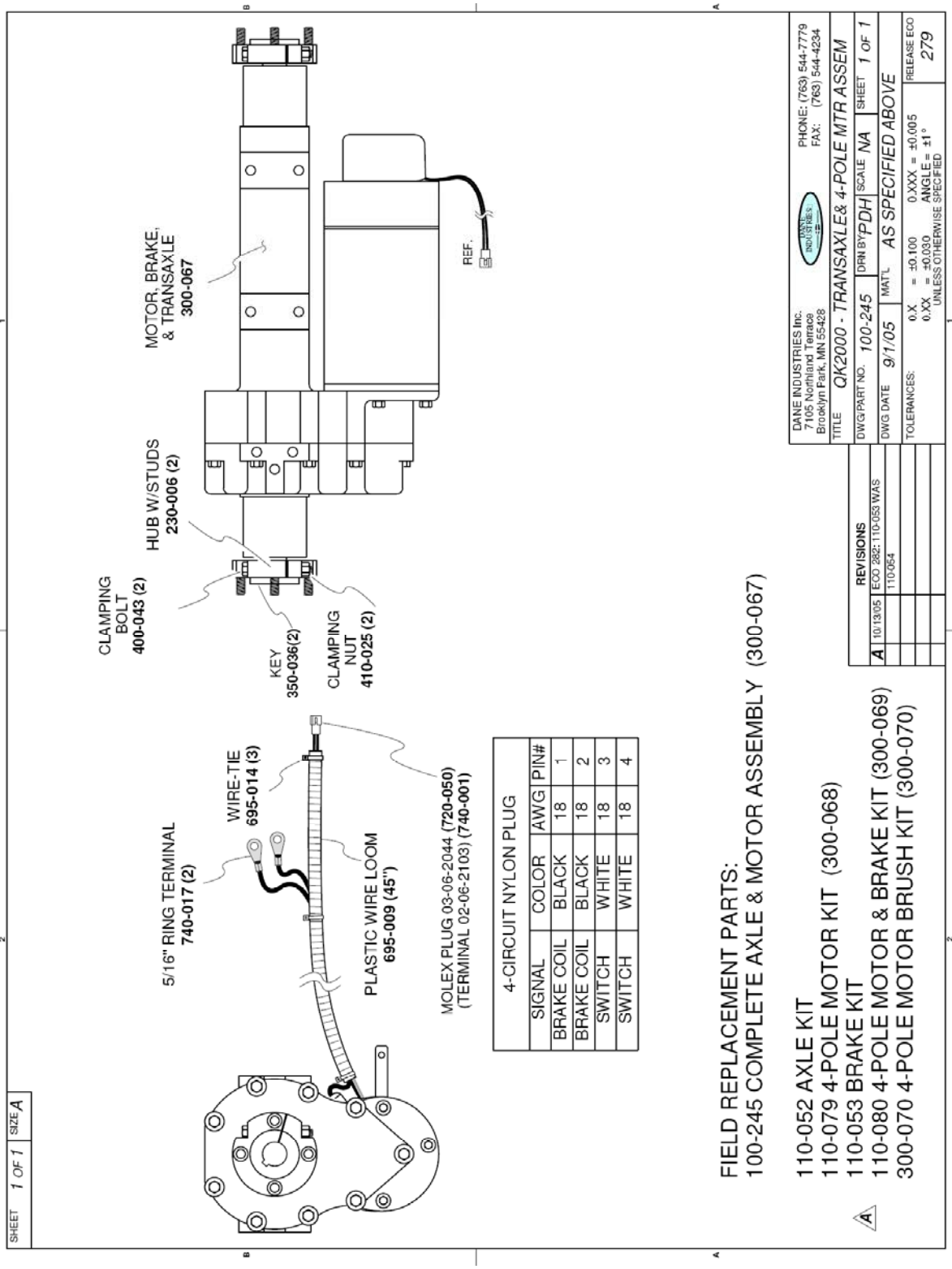

BILL OF MATERIAL
INDEX | PART NO. | DESCRIPTION | QTY
1 | 200-398 | TUBE, BEACON TOP, BRKWY TYPE 2 | 1
2 | 200-399 | TUBE, BEACON, QK2000 BRKWY TYPE 2 | 1
3 | 200-408 | SPACER, .38 ID X .625 OD X .75 ZN | 1
4 | 210-304 | GUARD, HAND | 1
5 | 400-090 | BOLT, 3/8-16 X 1.75 ZN | 1
6 | 410-019 | NUT, 3/8-16 NYLOCK ZN G5 | 1
7 | 480-067 | RECT. ROUND END CAP, VINYL W/ FOAM | 1
8 | 510-021 | FOAM STRIP, 1/2 X 1.25 | 1
9 | 520-009 | ADHESIVE, LOCTITE SUPERGLUE | 1
B INSERT BETWEEN HANDLEBAR AND GUARD DURING ASSEMBLY
B CUT END CAP IN HALF, APPLY ADDHESIVE TO EACH PIECE AND APPLY
A INSERT ONTO LH HANDLEBAR BEFORE INSTALLING HANDGRIP
DANE INDUSTRIES Inc.
7105 Northland Terrace
Brooklyn Park, MN 55428
PHONE: (763) 544-7779
FAX: (763) 544-4234
TITLE TUBE, QK2000 BREAKAWAY BEACON
DWG/PART NO. 100-248 SCALE 1/4 SHEET 1 OF 1
DWG DATE 13-Sep-05 DRN BY: PDH MAT'L AS SPECIFIED ABOVE
TOLERANCES 0.X = ±0.030 0.XX = ±0.010 0.XXX = ±0.005 ANGLE = ±0.2° UNLESS OTHERWISE SPECIFIED
ECO: 285
REVISIONS
A 9/30/05 ECO 286; ADDED 210-304 AND NOTE.
B 1/31/06 ECO 315; ADDED 480-087, 510-021, 520-009, NOTE "CUT ..", "INSERT.."

100-166 QuicKART 2500 - TRANSAXLE ASSEMBLY

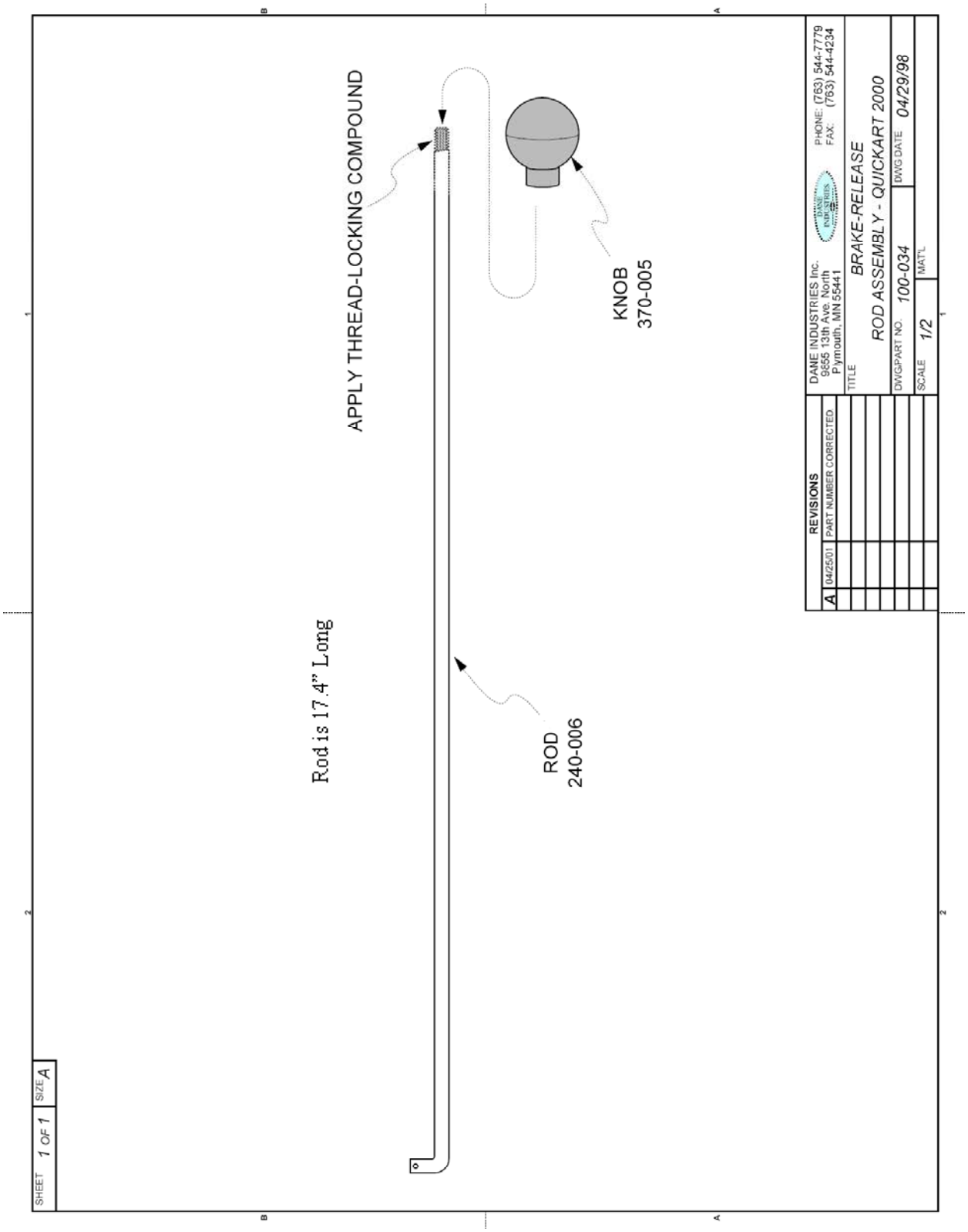

CLAMPING BOLT 400-043 (2)
KEY 350-036(2)
CLAMPING NUT 410-025 (2)
HUB W/STUDS 230-021 (2)
22.72
TOP VIEW
5/16" RING TERMINAL 740-017 (2)
WIRE-TIE 695-014 (3)
PLASTIC WIRE LOOM 695-009 (55")
MOLEX PLUG 03-06-2044 (720-050)
(TERMINAL 02-06-2103) (740-001)
300-041
41.2 RATIO
4-CIRCUIT NYLON PLUG
SIGNAL | COLOR | AWG | PIN#
BRAKE COIL | BLACK | 18 | 1
BRAKE COIL | BLACK | 18 | 2
SWITCH | WHITE | 18 | 3
SWITCH | WHITE | 18 | 4
REVISIONS
A 10/5/03 ECO 220: 350-036(2) WAS 350-038
DANE INDUSTRIES Inc.
5400 Nathan Lane N. #150
Plymouth, MN 55442
PHONE: (763) 544-7779
FAX: (763) 544-4234
TITLE QUICKART- ASI TRANSAXLE ASSEMBLY 41.2
DWG/PART NO. 100-166
DRN BY PDH
SCALE 1/5
SHEET 1 OF 1
DWG DATE 7/8/03
MATL AS SPECIFIED ABOVE
TOLERANCES 0.X = ±0.100 0.XXX = ±0.005
0.XX = ±0.030 ANGLE = ±1°
UNLESS OTHERWISE SPECIFIED
RELEASE ECO 231

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

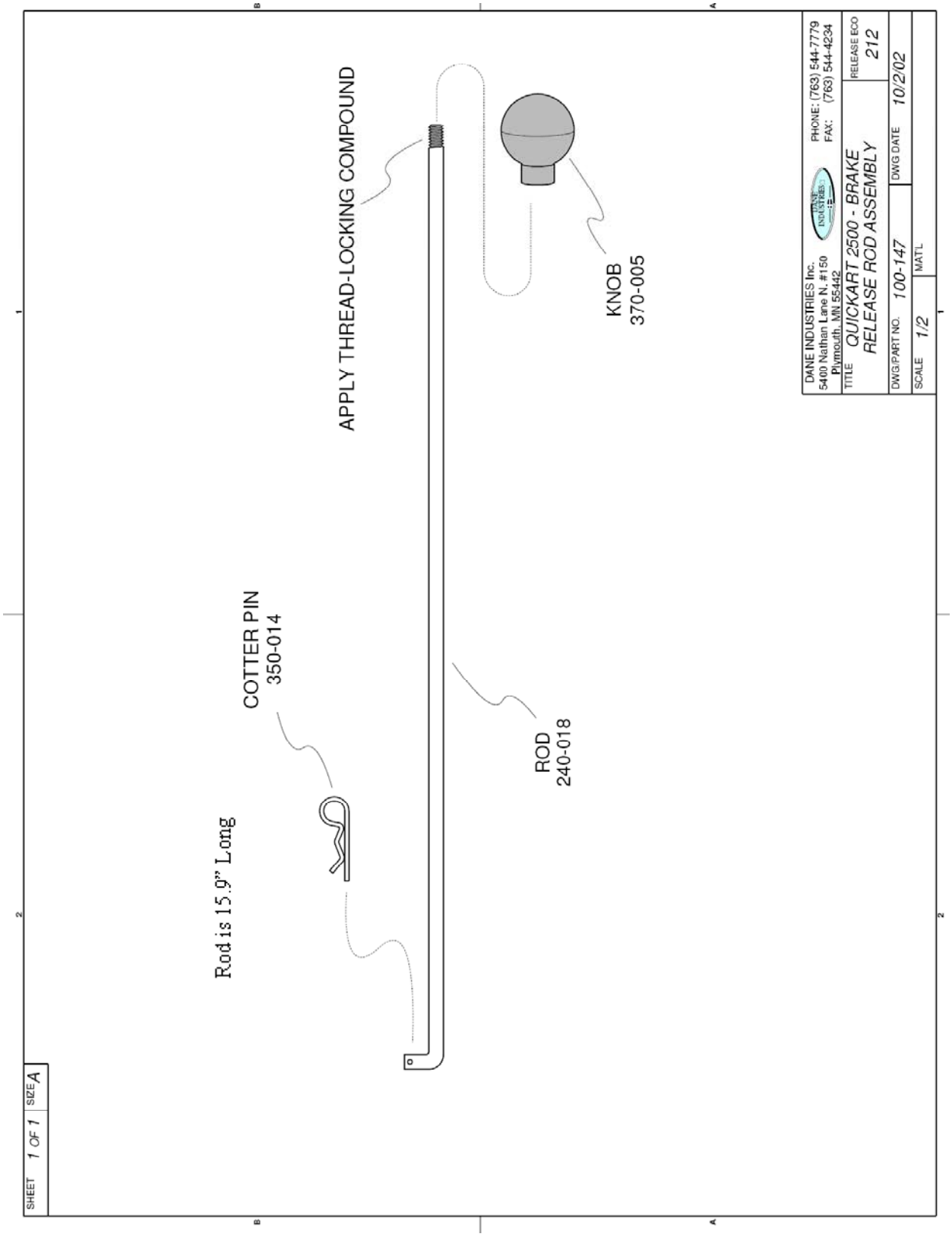
100-245 QuicKART 2000 – TRANSAXLE & 4-POLE MOTOR


MOTOR, BRAKE, & TRANSAXLE 300-067
REF.
HUB W/STUDS 230-006 (2)
CLAMPING BOLT 400-043 (2)
KEY 350-036(2)
CLAMPING NUT 410-025 (2)
WIRE-TIE 695-014 (3)
5/16" RING TERMINAL 740-017 (2)
PLASTIC WIRE LOOM 695-009 (45")
MOLEX PLUG 03-06-2044 (720-050) (TERMINAL 02-06-2103) (740-001)
4-CIRCUIT NYLON PLUG
SIGNAL | COLOR | AWG | PIN#
BRAKE COIL | BLACK | 18 | 1
BRAKE COIL | BLACK | 18 | 2
SWITCH | WHITE | 18 | 3
SWITCH | WHITE | 18 | 4
FIELD REPLACEMENT PARTS:
100-245 COMPLETE AXLE & MOTOR ASSEMBLY (300-067)
110-052 AXLE KIT
110-079 4-POLE MOTOR KIT (300-068)
110-053 BRAKE KIT
110-080 4-POLE MOTOR & BRAKE KIT (300-069)
300-070 4-POLE MOTOR BRUSH KIT (300-070)
REVISIONS
A 10/13/05 ECO 282: 110-053 WAS 110-064
DANE INDUSTRIES Inc. 7105 Northland Terrace Brooklyn Park, MN 55428
PHONE: (763) 544-7779 FAX: (763) 544-4234
TITLE QK2000 - TRANSAXLE& 4-POLE MTR ASSEM
DWG/PART NO. 100-245
DRN BY PDH
SCALE NA
SHEET 1 OF 1
DWG DATE 9/1/05
MATL AS SPECIFIED ABOVE
TOLERANCES: 0.X = ±0.100 0.XXX = ±0.005 0.XX = ±0.030 ANGLE = ±1° UNLESS OTHERWISE SPECIFIED
RELEASE ECO 279
SHEET 1 OF 1 SIZE A

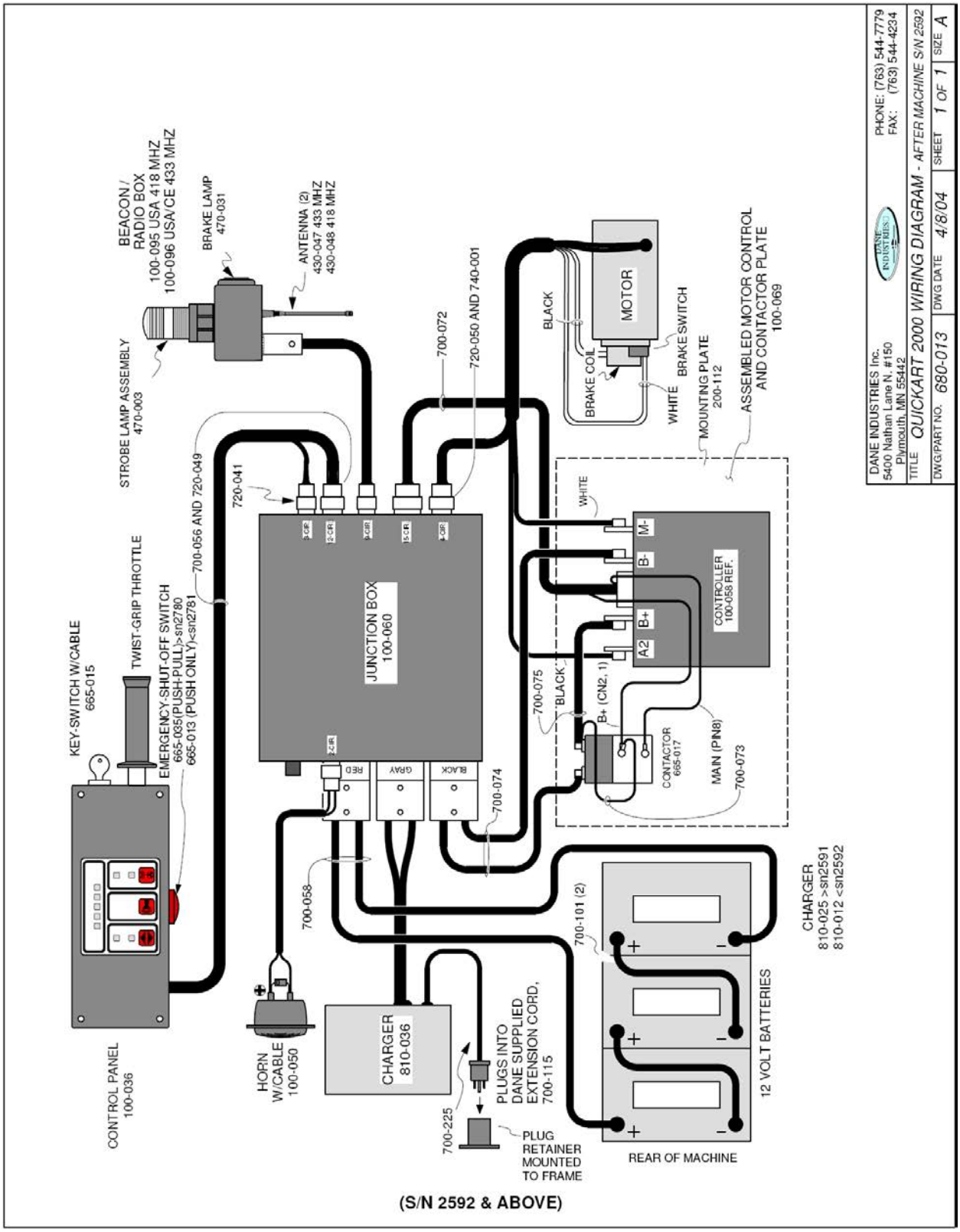
100-034 QuicKART 2000 – BRAKE ROD ASSEMBLY



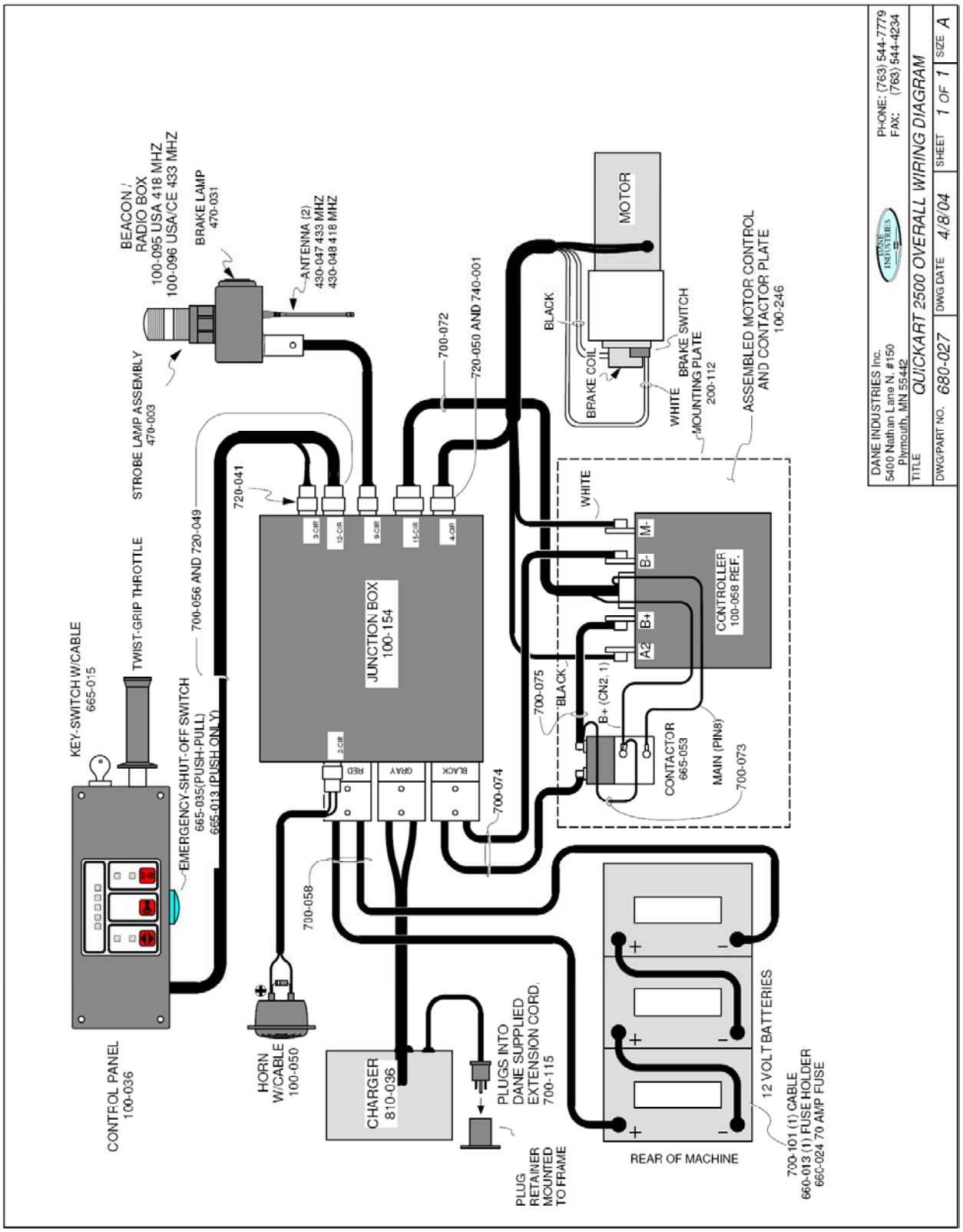
100-047 QuicKART 2500 – BRAKE ROD ASSEMBLY



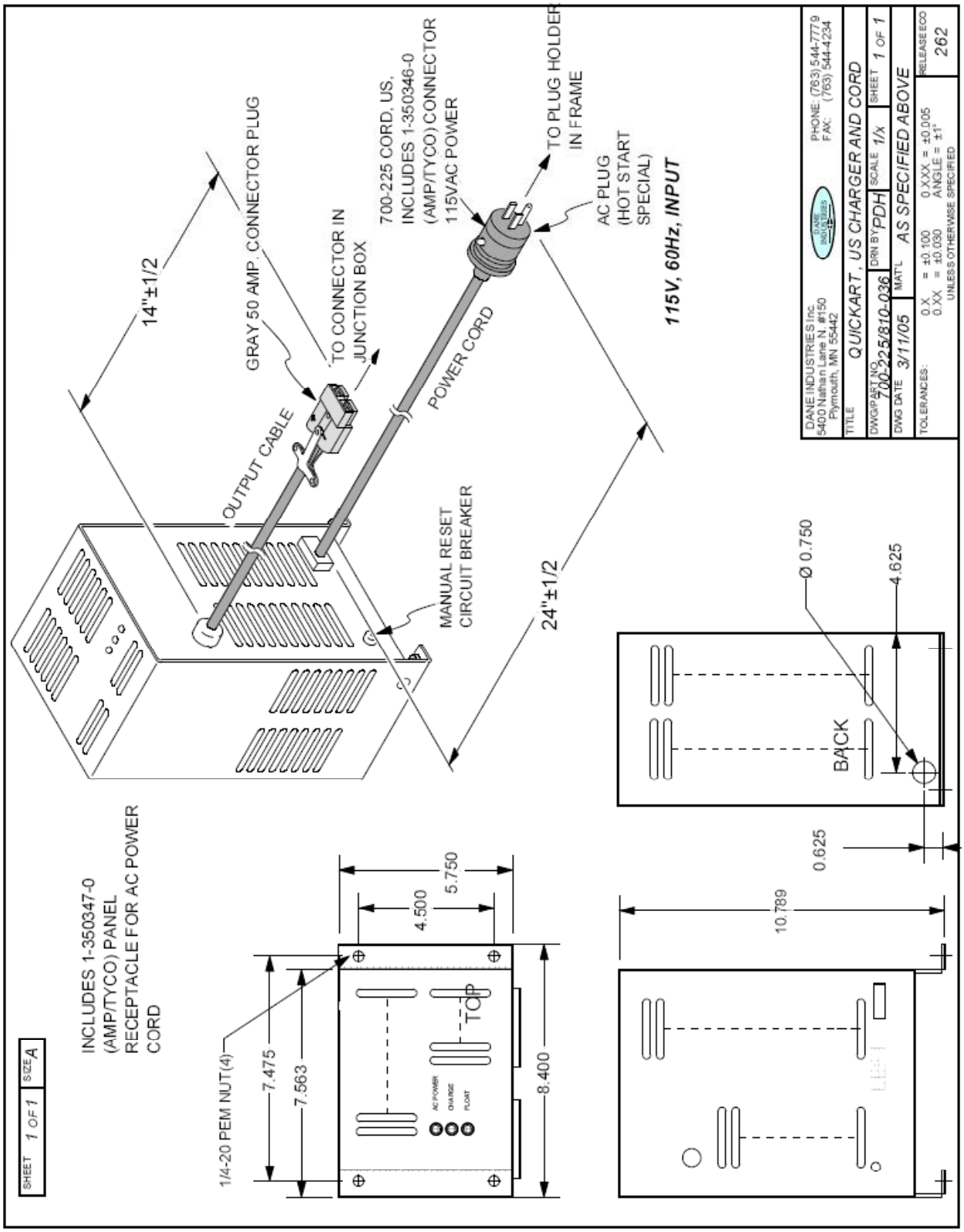
680-013 QuicKART WIRING DIAGRAM



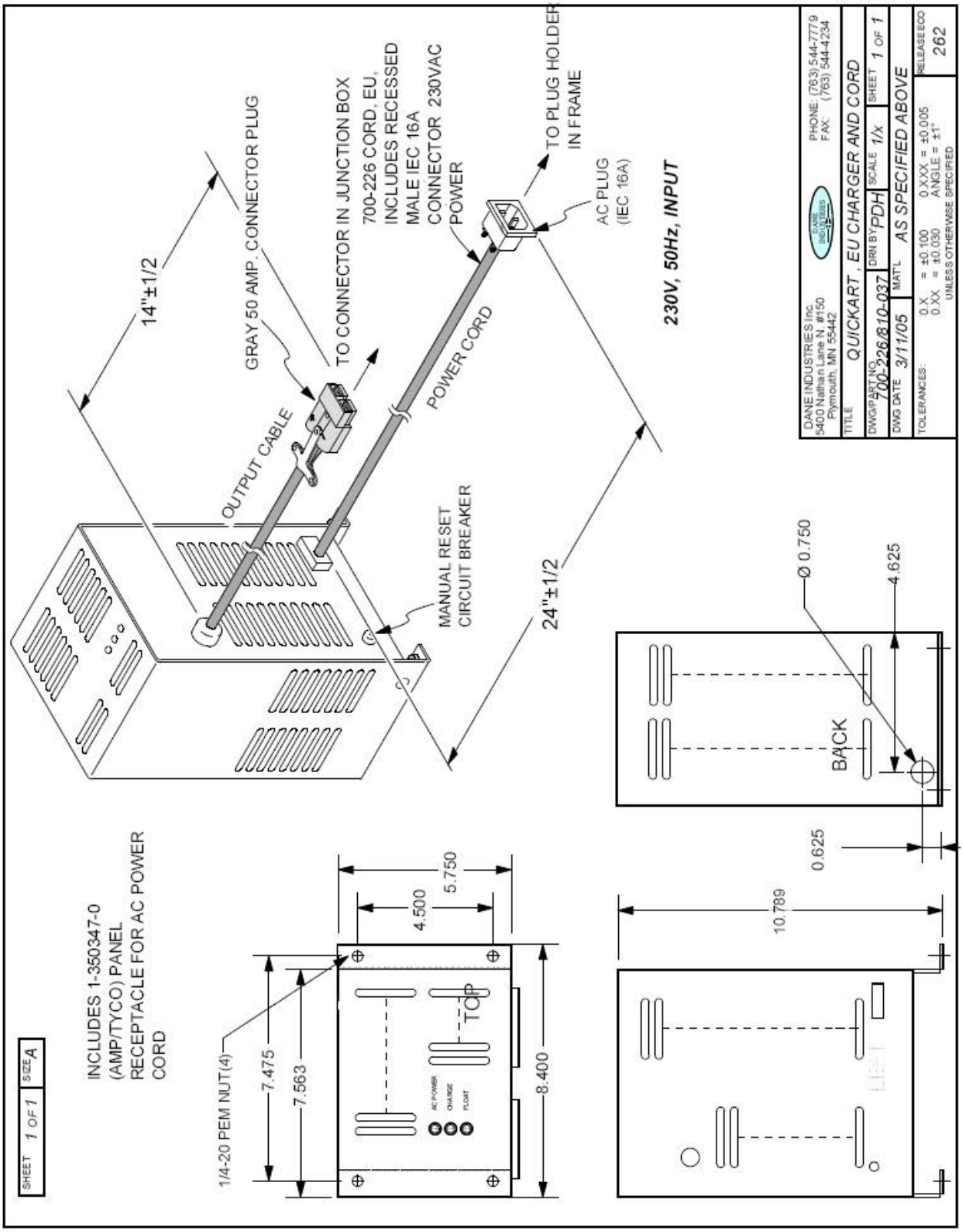
680-027 QuicKART 2500 OVERALL WIRING DIAGRAM



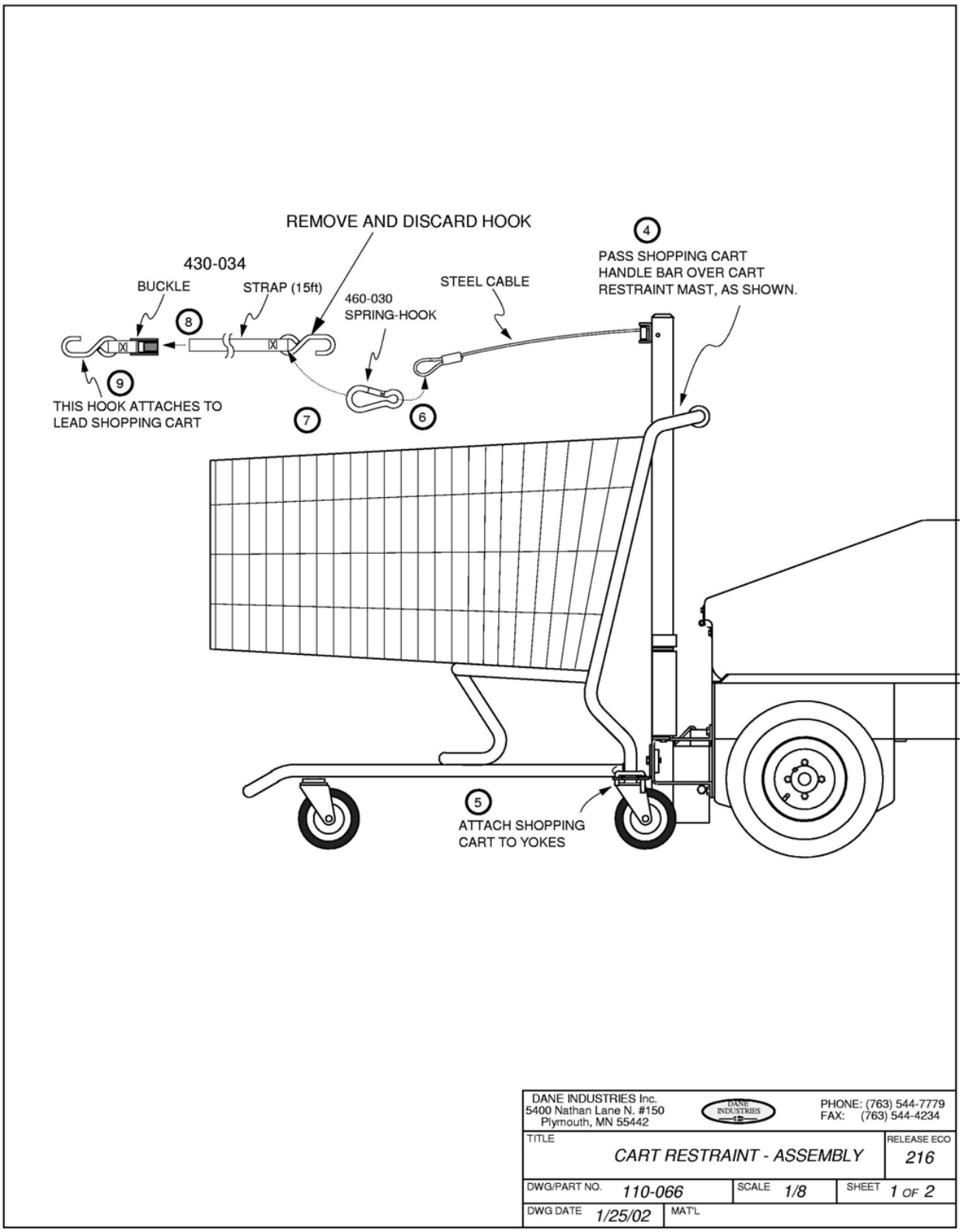
810-036 QuicKART, US CHARGER AND CORD

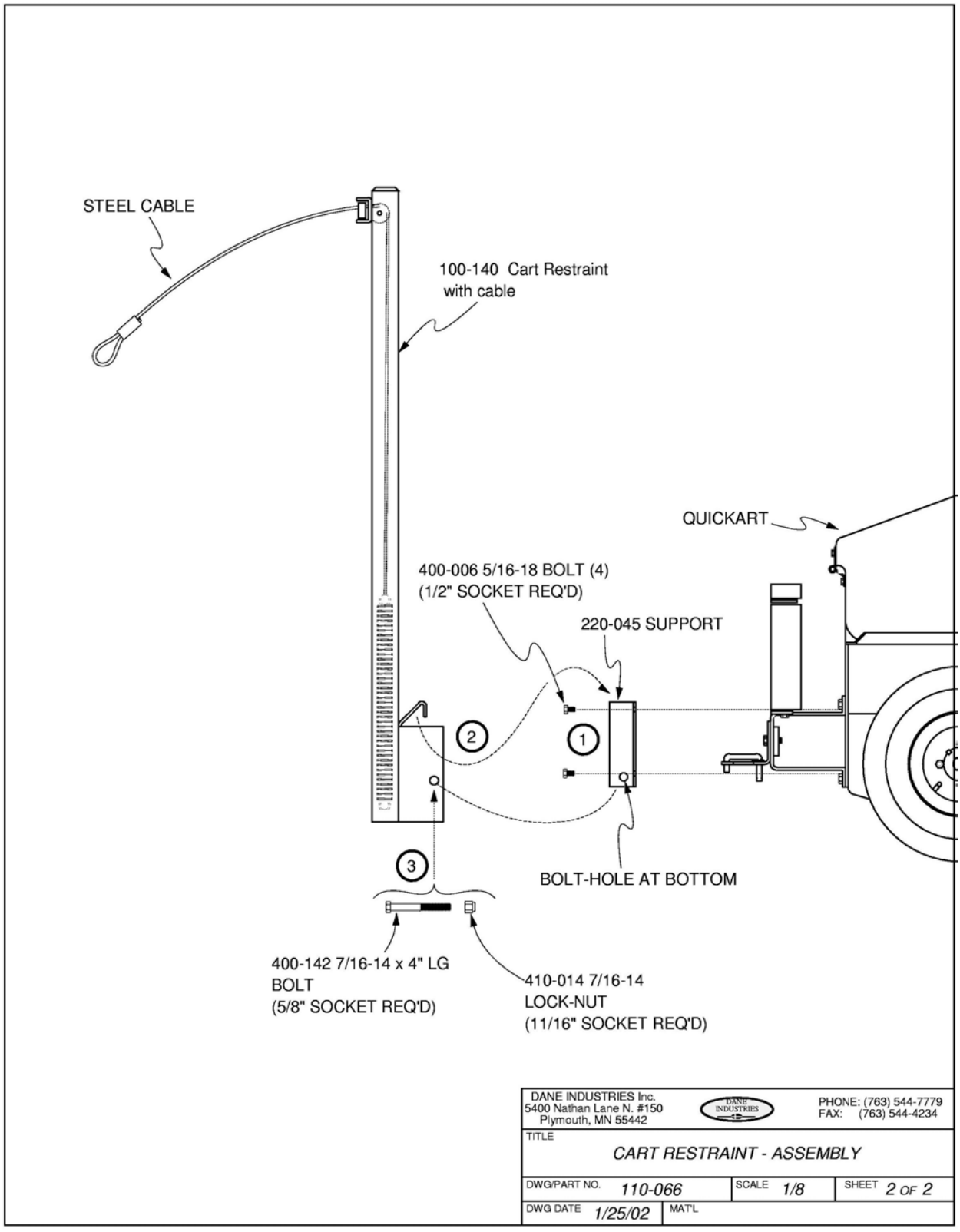


810-037 QuicKART EU CHARGER AND CORD



110-066 CART RESTRAINT - ASSEMBLY





7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

Dear Service Provider:

Thank you for your interest in joining our team of world-class Service Providers. By doing so, you have demonstrated a commitment to provide excellent service to our joint customers, on time, every time, professionally. Attached please find some materials that will help you as you join our team.

The package includes a training video and a folder that includes an owner's manual, a set of Service Bulletins, exploded parts drawings and, at the back, find the following additional materials:

- ✓ Ordering and invoicing procedures
- ✓ Recommended parts inventory
- ✓ QuicKART Warranty

Please share the enclosed information with the appropriate people in your organization.

Thank you again for your interest. I look forward to a long and mutually rewarding relationship. Please feel free to call or e-mail me at any time with questions or comments.

Sincerely,

Paul Halvorson
Vice President-Service
888-544-7779, Ext 4436
paulh@daneindustries.com

ORDERING AND INVOICING PROCEDURES

ORDERING

PARTS:

Call Dane Technologies at 888-544-7779 then choose the parts or service option

1. Please provide a purchase order # and, if applicable, the location of the customer store and the serial number of the QuicKART.

TECHNICAL SUPPORT:

Call the same phone number then choose the service option.

SHIPPING / INVOICING

WARRANTY:

1. If you have the part in stock, use it to repair the customer's QuicKART and take the defective part back to your shop.
2. Order a replacement part from Dane. Please provide the location of the customer store where your part was used so that we can verify warranty coverage.
3. Dane will ship a replacement part and invoice you for it. Along with the part, you will receive a RMA number, authorizing the return of the item under warranty.
4. Return the part to Dane along with the RMA number.
5. Upon verifying that the part is defective, Dane will issue a credit, canceling the invoice.

NON-WARRANTY:

1. Again, use a part from your stock if possible.
2. Invoice the customer for your labor and parts. **REMEMBER:** Labor warranty is 90 days from purchase date. Parts pricing must agree with the retail price shown on the Dane price list.
3. Order replacement parts for your inventory as described above.

IF YOU DON'T HAVE THE PART IN STOCK:

1. Order the part from Dane as described above. Please provide a purchase order number, ship-to address if different from your business address, customer store location, and information on the part coming back, if applicable.
2. Communicate with customer store management about delivery time and any other details about when you estimate the QuicKART will be repaired.

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

QuicKART 2000 and 2500 TOOLS

Size or Qty.	Tool
1) 9/16”	Deep socket and regular socket (3/8” drive)
2) 1/2”	Regular socket (3/8” drive)
3) 5/8”	Deep socket and regular socket (3/8” drive)
4) 3/4”	Deep socket (3/8” drive)
5) 6”	Extension (3/8” drive)
6) 12”	Extension (3/8” drive)
7) 1	12” – 3/8” drive ratchet
8) 1/4”	Combination wrench
9) 5/16”	Combination wrench
10) 7/16”	Combination wrench
11) 1/2”	Combination wrench
12) 9/16”	Combination wrench
13) 1/8”	Allen wrench
14) 9/64	Allen wrench
15) T25	Torque screw driver
16) Standard	Allen wrench set
17) Metric	Allen wrench set
18) #2	8” Phillips screw driver
19) #2	14” Straight screw driver
20) Medium	Needle nose pliers
21) Medium	Wire Cutters
22) Medium	Pliers or channel lock
23) 1	Programmable Programmer (100-106)
24) 1/16”	Molex pin extractor (P/N WM 9929-ND)

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

Service Provider Recommended Parts Inventory

Suggested Quantities are for every 10 QuicKARTs in your service area.

Part #	Description	TOTAL/10 QK
QuicKART 2000		
100-150	Remote	1
470-017	Strobe bulb	1
665-036	E-stop (red)	1
665-013	E-stop (blue)	1
110-026	Latch pin kit	2
360-008	12" tire knobby foam filled	6
110-018	Hub assy. Kit	1
100-069	Motor control assy.	1
100-060	Junction box (2k)	1
* 100-154	Junction box (2500)	1
100-095	Beacon tower	1
110-065	Brake light kit	1
100-112	Control panel w/o bezel	1
100-050	Horn assy.	1
110-053	Brake assy.	1
810-025	Battery charger	1
700-115	10' ext. Cord	1
360-016	Swivel wheel	3
110-064	Brake release rod kit	1
430-048	Antenna (new)	4
430-052	Antenna (old)	2
665-015	Key switch	1
665-016	Key	1
430-014	Red boot	2
700-101	Red 13 1/2" cable	2
110-023	Yoke clamping bar kit	2
300-013	Motor	1
110-060	Brush & spring kit	2
* 360-043	16" tire knobby (2500)	2
* 230-021	Hub assy. Kit	1

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

* 300-033	Brake assy.	1
* 300-041	Motor/axle/brake w/o hubs	1
* 300-042	Gear box w/o hubs	1
* 300-029	Motor	1
* 300-030	Motor brush kit (4)	1
* Only needed if 2500's are being serviced		

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

WARRANTY PARTS REQUIRED TO BE RETURNED

The following parts must be returned to Dane Technologies on all warranty claims. Returning the Warranty Claim Form with the parts will ensure prompt, accurate processing. If you have questions, please call **888-544-7779.**

QuicKART 2000/2500

Part #	Description
100-112	Control Panel Assembly
100-060/100-154	Junction Box Assembly
100-069	Curtis Control Assembly
100-072	Beacon Tower (Old Style)
100-095/100-096	Beacon Head (New Style)
100-030/100-150	Remote Control
100-035/100-145	Motor/Brake/Gearbox

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com

Store: _____ **Date:** _____
Location: _____ **Serial Number:** _____
Meter Hours: _____
Sticker Condition _____

QuicKART 2000 and 2500 Preventive Maintenance

PM Checklist	Inspected	OK	Needs Repair/Replacement
Inspect cord, cord plug, cord reel			
Inspect and test brake release system			
Inspect, clean battery terminals and cables			
Inspect throttle			
Check wiring, wiring plugs for damage			
Check battery charger operation			
Check battery fluid levels			
Inspect tires, rims, and lug nuts			
Inspect body parts			
Inspect and grease rear caster			
Inspect for handle bar damage (play in handle)			
Inspect beacon tower Strobe light			
Brake light			
Antennas			
Inspect and test remote Battery			
Range			
Inspect control panel Ignition switch			
Emergency stop button			
Function test			
Inspect rollers and yokes			
Operation test			

Any other problems:

_____

_____

Comments:

_____

_____

7105 Northland Terrace, Minneapolis, MN 55428 / 888-544-7779 / 763-544-7779 / Fax 763-544-4234
www.danetechnologies.com
970-011 Rev. 3/1/06